

09743PC.ST25.txt
SEQUENCE LISTING

<110> University of Geneva

<120> Virulence genes, proteins, and their use

<130> 09743PC

<150> US 10/324,967

<151> 2002-12-20

<160> 64

<170> PatentIn version 3.1

<210> 1

<211> 1050

<212> DNA

<213> Pseudomonas aeruginosa

<400> 1

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gtcgccgccc ctggcgccaa ggtcgccaaa cacggtaacc gcgcggtctc cggcaagagc      360
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ggcccggcac tgtacgtgc cgatctggcg accagcctgc acgagggcac tcaactggcc      960
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<210> 2

<211> 349

<212> PRT

<213> Pseudomonas aeruginosa

<400> 2

09743PC.ST25.txt

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Thr Thr Glu Glu Met Gln Ala Val Met Arg Gln Ile Met Thr Gly Gln
20 25 30

Cys Thr Asp Ala Gln Ile Gly Ala Phe Leu Met Gly Met Arg Met Lys
35 40 45

Ser Glu Thr Ile Asp Glu Ile Val Gly Ala Val Ala Val Met Arg Glu
50 55 60

Leu Ala Asp Gly Val Gln Leu Pro Thr Leu Lys His Val Val Asp Val
65 70 75 80

Val Gly Thr Gly Gly Asp Gly Ala Asn Ile Phe Asn Val Ser Ser Ala
85 90 95

Ala Ser Phe Val Val Ala Ala Ala Gly Gly Lys Val Ala Lys His Gly
100 105 110

Asn Arg Ala Val Ser Gly Lys Ser Gly Ser Ala Asp Leu Leu Glu Ala
115 120 125

Ala Gly Ile Tyr Leu Glu Leu Thr Ser Glu Gln Val Ala Arg Cys Ile
130 135 140

Asp Thr Val Gly Val Gly Phe Met Phe Ala Gln Val His His Lys Ala
145 150 155 160

Met Lys Tyr Ala Ala Gly Pro Arg Arg Glu Leu Gly Leu Arg Thr Leu
165 170 175

Phe Asn Met Leu Gly Pro Leu Thr Asn Pro Ala Gly Val Arg His Gln
180 185 190

Val Val Gly Val Phe Thr Gln Glu Leu Cys Lys Pro Leu Ala Glu Val
195 200 205

Leu Lys Arg Leu Gly Ser Glu His Val Leu Val Val His Ser Arg Asp
210 215 220

Gly Leu Asp Glu Phe Ser Leu Ala Ala Ala Thr His Ile Ala Glu Leu
225 230 235 240

Lys Asp Gly Glu Val Arg Glu Tyr Glu Val Arg Pro Glu Asp Phe Gly
245 250 255

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Ile Lys Ser Gln Thr Leu Met Gly Leu Glu Val Asp Ser Pro Gln Ala
 260 265 270

Ser Leu Glu Leu Ile Arg Asp Ala Leu Gly Arg Arg Lys Thr Glu Ala
 275 280 285

Gly Gln Lys Ala Ala Glu Leu Ile Val Met Asn Ala Gly Pro Ala Leu
 290 295 300

Tyr Ala Ala Asp Leu Ala Thr Ser Leu His Glu Gly Ile Gln Leu Ala
 305 310 315 320

His Asp Ala Leu His Thr Gly Leu Ala Arg Glu Lys Met Asp Glu Leu
 325 330 335

Val Ala Phe Thr Ala Val Tyr Arg Glu Glu Asn Ala Gln
 340 345

<210> 3
 <211> 918
 <212> DNA
 <213> Pseudomonas aeruginosa

<400> 3
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 gtcattgctgc acctggcccc caaggccttc ttccccggca agctgccctt cccggtgatg 180
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<210> 4

<211> 305

<212> PRT

<213> Pseudomonas aeruginosa

<400> 4

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 20 25 30

Tyr Ser Ile Gly Lys Asp Ser Ala Val Met Leu His Leu Ala Arg Lys
 35 40 45

Ala Phe Phe Pro Gly Lys Leu Pro Phe Pro Val Met His Val Asp Thr
 50 55 60

Arg Trp Lys Phe Gln Glu Met Tyr Arg Phe Arg Asp Arg Met Val Glu
 65 70 75 80

Glu Met Gly Leu Asp Leu Ile Thr His Val Asn Pro Asp Gly Val Ala
 85 90 95

Gln Gly Ile Asn Pro Phe Thr His Gly Ser Ala Lys His Thr Asp Val
 100 105 110

Met Lys Thr Glu Gly Leu Lys Gln Ala Leu Asp Lys Tyr Gly Phe Asp
 115 120 125

Ala Ala Phe Gly Gly Ala Arg Arg Asp Glu Glu Lys Ser Arg Ala Lys
 130 135 140

Glu Arg Val Tyr Ser Phe Arg Asp Ser Lys His Arg Trp Asp Pro Lys
 145 150 155 160

Asn Gln Arg Pro Glu Leu Trp Asn Ile Tyr Asn Gly Lys Val Lys Lys
 165 170 175

Gly Glu Ser Ile Arg Val Phe Pro Leu Ser Asn Trp Thr Glu Leu Asp
 180 185 190

Ile Trp Gln Tyr Ile Tyr Leu Glu Gly Ile Pro Ile Val Pro Leu Tyr
 195 200 205

Phe Ala Ala Glu Arg Glu Val Ile Glu Lys Asn Gly Thr Leu Ile Met
 210 215 220

Ile Asp Asp Glu Arg Ile Leu Glu His Leu Ser Asp Glu Glu Lys Ala

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225 230 235 240

Arg Ile Glu Lys Arg Met Val Arg Phe Arg Thr Leu Gly Cys Tyr Pro
 245 250 255

Leu Thr Gly Ala Val Glu Ser Ser Ala Thr Thr Leu Pro Glu Ile Ile
 260 265 270

Gln Glu Met Leu Leu Thr Arg Thr Ser Glu Arg Gln Gly Arg Val Ile
 275 280 285

Asp His Asp Gln Ala Gly Ser Met Glu Glu Lys Lys Arg Gln Gly Tyr
 290 295 300

Phe
305

<210> 5
 <211> 822
 <212> DNA
 <213> Pseudomonas aeruginosa

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 caggggtgtg tggaaggcgc cggcggcgag gtgctcgacc tgcattggtg gccattcacc 720
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<210> 6
 <211> 273
 <212> PRT
 <213> Pseudomonas aeruginosa

<400> 6

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 20 25 30
 Lys Ala Asp Glu Ser Pro Val Thr Ala Ala Asp Leu Ala Ala His His
 35 40 45
 Ile Leu Glu Ala Gly Leu Arg Ala Leu Ala Pro Asp Ile Pro Val Leu
 50 55 60
 Ser Glu Glu Asp Cys Glu Ile Pro Leu Ser Glu Arg Gly His Trp Arg
 65 70 75 80
 Arg Trp Trp Leu Val Asp Pro Leu Asp Gly Thr Lys Glu Phe Ile Ser
 85 90 95
 Gly Ser Glu Glu Phe Thr Val Asn Val Ala Leu Val Glu Asp Gly Arg
 100 105 110
 Val Leu Phe Gly Leu Val Gly Val Pro Val Ser Gly Arg Cys Tyr Tyr
 115 120 125
 Gly Gly Ala Gly Leu Gly Ala Trp Arg Glu Glu Ala Asp Gly Arg Ala
 130 135 140
 Gln Pro Ile Ser Val Arg Leu Glu Pro Glu Glu Ala Phe Thr Val Val
 145 150 155 160
 Ala Ser Lys Arg His Gly Ser Pro Ala Gln Glu Arg Leu Leu Asp Gly
 165 170 175
 Leu Ser Glu Arg Phe Gly Asp Leu Arg Arg Ala Ser Ile Gly Ser Ser
 180 185 190
 Leu Lys Phe Cys Leu Leu Ala Glu Gly Ala Ala Asp Cys Tyr Pro Arg
 195 200 205
 Leu Thr Pro Thr Ser Gln Trp Asp Thr Ala Ala Ala Gln Gly Val Leu
 210 215 220
 Glu Gly Ala Gly Gly Glu Val Leu Asp Leu His Gly Ala Pro Phe Thr
 225 230 235 240
 Tyr Glu Pro Arg Glu Asp Tyr Leu Asn Gly Ser Phe Leu Ala Leu Pro
 245 250 255

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Arg Ala Ala Glu Trp Arg Ser Glu Leu Ile Gln Leu Ala Arg Ala Leu
 260 265 270

His

<210> 7
 <211> 1299
 <212> DNA
 <213> Pseudomonas aeruginosa

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 tccgatccca gccagtagcg ctggatgctg cagatgctgc gcaactgcac cgccgagcgc 300
 tacgccgtga acaaggagcg catggtccgc ctgtccgagt acagccgcga ttgcctcgac 360
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 ggcgaaattgc tcaccgccga ccaactacgtg ctggccctgg gcagctactc gccgcaactg 780
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 <211> 432
 <212> PRT
 <213> Pseudomonas aeruginosa

09743PC.ST25.txt

<400> 8

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           20           25           30

Asp Gly Pro Ala Leu Glu Thr Ser Phe Ala Asn Ala Gly Gln Val Ser
           35           40           45

Pro Gly Tyr Ala Ser Pro Trp Ala Ala Pro Gly Ile Pro Leu Lys Ala
           50           55           60

Met Lys Trp Leu Leu Glu Lys His Ala Pro Leu Ala Ile Lys Leu Thr
65           70           75           80

Ser Asp Pro Ser Gln Tyr Ala Trp Met Leu Gln Met Leu Arg Asn Cys
           85           90           95

Thr Ala Glu Arg Tyr Ala Val Asn Lys Glu Arg Met Val Arg Leu Ser
           100          105          110

Glu Tyr Ser Arg Asp Cys Leu Asp Glu Leu Arg Ala Glu Thr Gly Ile
           115          120          125

Ala Tyr Glu Gly Arg Thr Leu Gly Thr Thr Gln Leu Phe Arg Thr Gln
           130          135          140

Ala Gln Leu Asp Ala Ala Gly Lys Asp Ile Ala Val Leu Glu Arg Ser
           145          150          155          160

Gly Val Pro Tyr Glu Val Leu Asp Arg Asp Gly Ile Ala Arg Val Glu
           165          170          175

Pro Ala Leu Ala Lys Val Ala Asp Lys Leu Val Gly Ala Leu Arg Leu
           180          185          190

Pro Asn Asp Gln Thr Gly Asp Cys Gln Leu Phe Thr Thr Arg Leu Ala
           195          200          205

Glu Met Ala Lys Gly Leu Gly Val Glu Phe Arg Phe Gly Gln Asn Ile
           210          215          220

Glu Arg Leu Asp Phe Ala Gly Asp Arg Ile Asn Gly Val Leu Val Asn
           225          230          235          240

Gly Glu Leu Leu Thr Ala Asp His Tyr Val Leu Ala Leu Gly Ser Tyr

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245

250

255

Ser Pro Gln Leu Leu Lys Pro Leu Gly Ile Lys Ala Pro Val Tyr Pro
 260 265 270

Leu Lys Gly Tyr Ser Leu Thr Val Pro Ile Thr Asn Pro Glu Met Ala
 275 280 285

Pro Thr Ser Thr Ile Leu Asp Glu Thr Tyr Lys Val Ala Ile Thr Arg
 290 295 300

Phe Asp Gln Arg Ile Arg Val Gly Gly Met Ala Glu Ile Ala Gly Phe
 305 310 315 320

Asp Leu Ser Leu Asn Pro Arg Arg Arg Glu Thr Leu Glu Met Ile Thr
 325 330 335

Thr Asp Leu Tyr Pro Glu Gly Gly Asp Ile Ser Gln Ala Thr Phe Trp
 340 345 350

Thr Gly Leu Arg Pro Ala Thr Pro Asp Gly Thr Pro Ile Val Gly Ala
 355 360 365

Thr Arg Tyr Arg Asn Leu Phe Leu Asn Thr Gly His Gly Thr Leu Gly
 370 375 380

Trp Thr Met Ala Cys Gly Ser Gly Arg Tyr Leu Ala Asp Leu Met Ala
 385 390 395 400

Lys Lys Arg Pro Gln Ile Ser Thr Glu Gly Leu Asp Ile Ser Arg Tyr
 405 410 415

Ser Asn Ser Pro Glu Asn Ala Lys Asn Ala His Pro Ala Pro Ala His
 420 425 430

<210> 9

<211> 771

<212> DNA

<213> Pseudomonas aeruginosa

<400> 9

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09743PC.ST25.txt

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ctcgagggca aggccgacgc ggtgctcgcg gcgagcatct tccacttcgg cgagtacacc 720
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<210> 10
<211> 256
<212> PRT
<213> Pseudomonas aeruginosa

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<400> 10

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Met Ala Leu Ala Lys Arg Ile Ile Pro Cys Leu Asp Val Asp Asn Gly
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Arg Val Val Lys Gly Val Lys Phe Glu Asn Ile Arg Asp Ala Gly Asp
          20           25           30

```

```

Pro Val Glu Ile Ala Arg Arg Tyr Asp Glu Gln Gly Ala Asp Glu Ile
      35           40           45

```

```

Thr Phe Leu Asp Ile Thr Ala Ser Val Asp Gly Arg Asp Thr Thr Leu
      50           55           60

```

```

His Thr Val Glu Arg Met Ala Ser Gln Val Phe Ile Pro Leu Thr Val
65           70           75           80

```

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Gly Gly Gly Val Arg Ser Val Gln Asp Ile Arg Asn Leu Leu Asn Ala
      85           90           95

```

```

Gly Ala Asp Lys Val Ser Ile Asn Thr Ala Ala Val Phe Asn Pro Glu
      100          105          110

```

```

Phe Val Gly Glu Ala Ala Asp Arg Phe Gly Ser Gln Cys Ile Val Val
      115          120          125

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```

Ala Ile Asp Ala Lys Lys Val Ser Ala Pro Gly Glu Ala Pro Arg Trp
      130          135          140

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Glu Ile Phe Thr His Gly Gly Arg Lys Pro Thr Gly Leu Asp Ala Val
145           150          155          160

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Leu Trp Ala Lys Lys Met Glu Asp Leu Gly Ala Gly Glu Ile Leu Leu

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09743PC.ST25.txt

165

170

175

Thr Ser Met Asp Gln Asp Gly Val Lys Ser Gly Tyr Asp Leu Gly Val
 180 185 190

Thr Arg Ala Ile Ser Glu Ala Val Asn Val Pro Val Ile Ala Ser Gly
 195 200 205

Gly Val Gly Asn Leu Glu His Leu Ala Ala Gly Ile Leu Glu Gly Lys
 210 215 220

Ala Asp Ala Val Leu Ala Ala Ser Ile Phe His Phe Gly Glu Tyr Thr
 225 230 235 240

Val Pro Glu Ala Lys Ala Tyr Leu Ala Ser Arg Gly Ile Val Val Arg
 245 250 255

<210> 11
 <211> 1035
 <212> DNA
 <213> Pseudomonas aeruginosa

<400> 11
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 aaggtcgccg acatgtaccc gaacctgcga ggtcattatg acgacctgca gttcagcgtg 180
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09743PC.ST25.txt

<210> 12
 <211> 344
 <212> PRT
 <213> Pseudomonas aeruginosa

<400> 12

Met Ile Lys Val Gly Ile Val Gly Gly Thr Gly Tyr Thr Gly Val Glu
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Leu Leu Arg Leu Leu Ala Gln His Pro Gln Ala Arg Val Glu Val Ile
 20 25 30

Thr Ser Arg Ser Glu Ala Gly Val Lys Val Ala Asp Met Tyr Pro Asn
 35 40 45

Leu Arg Gly His Tyr Asp Asp Leu Gln Phe Ser Val Pro Asp Ala Gln
 50 55 60

Arg Leu Gly Ala Cys Asp Val Val Phe Phe Ala Thr Pro His Gly Val
 65 70 75 80

Ala His Ala Leu Ala Gly Glu Leu Leu Asp Ala Gly Thr Arg Val Ile
 85 90 95

Asp Leu Ser Ala Asp Phe Arg Leu Ala Asp Ala Glu Glu Trp Ala Arg
 100 105 110

Trp Tyr Gly Gln Pro His Gly Ala Pro Ala Leu Leu Asp Glu Ala Val
 115 120 125

Tyr Gly Leu Pro Glu Val Asn Arg Glu Lys Ile Arg Gln Ala Arg Leu
 130 135 140

Ile Ala Val Pro Gly Cys Tyr Pro Thr Ala Thr Gln Leu Gly Leu Ile
 145 150 155 160

Pro Leu Leu Glu Ala Gly Leu Ala Asp Ala Ser Arg Leu Ile Ala Asp
 165 170 175

Cys Lys Ser Gly Val Ser Gly Ala Gly Arg Gly Ala Lys Val Gly Ser
 180 185 190

Leu Phe Cys Glu Ala Gly Glu Ser Met Met Ala Tyr Ala Val Lys Gly
 195 200 205

His Arg His Leu Pro Glu Ile Ser Gln Gly Leu Arg Arg Ala Ser Gly
 210 215 220

09743PC.ST25.txt

Gly Asp Val Gly Leu Thr Phe Val Pro His Leu Thr Pro Met Ile Arg
225 230 235 240

Gly Ile His Ala Thr Leu Tyr Ala His Val Ala Asp Arg Ser Val Asp
245 250 255

Leu Gln Ala Leu Phe Glu Lys Arg Tyr Ala Asp Glu Pro Phe Val Asp
260 265 270

Val Met Pro Ala Gly Ser His Pro Glu Thr Arg Ser Val Arg Gly Ala
275 280 285

Asn Val Cys Arg Ile Ala Val His Arg Pro Gln Gly Gly Asp Leu Val
290 295 300

Val Val Leu Ser Val Ile Asp Asn Leu Val Lys Gly Ala Ser Gly Gln
305 310 315 320

Ala Leu Gln Asn Met Asn Ile Leu Phe Gly Leu Asp Glu Arg Leu Gly
325 330 335

Leu Ser His Ala Ala Leu Leu Pro
340

<210> 13
<211> 1644
<212> DNA
<213> Pseudomonas aeruginosa

<400> 13
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aaggccagca tggaaatccc cagtcccaag gccggyggtag tgaaaagcat caaggcgaag 180
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gcgcctgctc ccgccccgag cgagagcaag ccggccgccc ccgcccgggc cagcgtccag 360
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09743PC.ST25.txt

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 <212> PRT
 <213> *Pseudomonas aeruginosa*

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Ser Leu Leu Thr Leu Glu Ser Asp Lys Ala Ser Met Glu Ile Pro Ser
 35 40 45

Pro Lys Ala Gly Val Val Lys Ser Ile Lys Ala Lys Val Gly Asp Thr
 50 55 60

Leu Lys Glu Gly Asp Glu Ile Leu Glu Leu Glu Val Glu Gly Gly Glu
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Gln Pro Ala Glu Ala Lys Ala Glu Ala Ala Pro Ala Gln Pro Glu Ala
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Pro Lys Ala Glu Ala Pro Ala Pro Ala Pro Ser Glu Ser Lys Pro Ala

09743PC.ST25.txt

100

105

110

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Ser Met Glu Ile Pro Ser Pro Ala Ser Gly Val Val Glu Ser Val Ser
 165 170 175

Ile Lys Val Gly Asp Glu Val Gly Thr Gly Asp Leu Ile Leu Lys Leu
 180 185 190

Lys Val Glu Gly Ala Ala Pro Ala Ala Glu Glu Gln Pro Ala Ala Ala
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Pro Ala Gln Ala Ala Ala Pro Ala Ala Glu Gln Lys Pro Ala Ala Ala
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Ala Pro Ala Pro Ala Lys Ala Asp Thr Pro Ala Pro Val Gly Ala Pro
 225 230 235 240

Ser Arg Asp Gly Ala Lys Val His Ala Gly Pro Ala Val Arg Met Leu
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Ala Arg Glu Phe Gly Val Glu Leu Ser Glu Val Lys Ala Ser Gly Pro
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Lys Gly Arg Ile Leu Lys Glu Asp Val Gln Val Phe Val Lys Glu Gln
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Leu Gln Arg Ala Lys Ser Gly Gly Ala Gly Ala Thr Gly Gly Ala Gly
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Ile Pro Pro Ile Pro Glu Val Asp Phe Ser Lys Phe Gly Glu Val Glu
 305 310 315 320

Glu Val Ala Met Thr Arg Leu Met Gln Val Gly Ala Ala Asn Leu His
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Arg Ser Trp Leu Asn Val Pro His Val Thr Gln Phe Asp Gln Ser Asp
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Ile Thr Asp Met Glu Ala Phe Arg Val Ala Gln Lys Ala Ala Ala Glu

09743PC.ST25.txt

355

360

365

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Ser Gly Lys Ala Leu Ile Arg Lys Lys Tyr Val His Ile Gly Phe Ala
 405 410 415

Val Asp Thr Pro Asp Gly Leu Leu Val Pro Val Ile Arg Asp Val Asp
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Arg Lys Ser Leu Leu Gln Leu Ala Ala Glu Ala Ala Asp Leu Ala Asp
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Lys Ala Arg Asn Lys Lys Leu Ser Ala Asp Ala Met Gln Gly Ala Cys
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Phe Thr Ile Ser Ser Leu Gly His Ile Gly Gly Thr Gly Phe Thr Pro
 465 470 475 480

Ile Val Asn Ala Pro Glu Val Ala Ile Leu Gly Val Ser Lys Ala Thr
 485 490 495

Met Gln Pro Val Trp Asp Gly Lys Ala Phe Gln Pro Arg Leu Met Leu
 500 505 510

Pro Leu Ser Leu Ser Tyr Asp His Arg Val Ile Asn Gly Ala Ala Ala
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Leu Leu Leu
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 <212> DNA
 <213> Pseudomonas aeruginosa

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09743PC.ST25.txt

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 <213> *Pseudomonas aeruginosa*

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Ser Trp Val Glu Arg Arg Leu Leu Gly Leu Trp Gln Asp Arg Tyr Gly
 35 40 45

Pro Asn Arg Val Gly Pro Phe Gly Ala Phe Gln Leu Gly Ala Asp Met
 50 55 60

Val Lys Met Phe Phe Lys Glu Asp Trp Thr Pro Pro Phe Ala Asp Lys
 65 70 75 80

Met Ile Phe Thr Leu Ala Pro Val Ile Ala Met Gly Ala Leu Leu Val
 85 90 95

Ala Phe Ala Ile Val Pro Ile Thr Pro Thr Trp Gly Val Ala Asp Leu
 100 105 110

Asn Ile Gly Ile Leu Phe Phe Phe Ala Met Ala Gly Leu Thr Val Tyr

09743PC.ST25.txt

115

120

125

Ala Val Leu Phe Ala Gly Trp Ser Ser Asn Asn Lys Phe Ala Leu Leu
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Gly Ser Leu Arg Ala Ser Ala Gln Thr Ile Ser Tyr Glu Val Phe Leu
 145 150 155 160

Ala Leu Ser Leu Met Gly Ile Val Ala Gln Val Gly Ser Phe Asn Met
 165 170 175

Arg Asp Ile Val Gln Tyr Gln Ile Asp Asn Val Trp Phe Ile Ile Pro
 180 185 190

Gln Phe Phe Gly Phe Cys Thr Phe Ile Ile Ala Gly Val Ala Val Thr
 195 200 205

His Arg His Pro Phe Asp Gln Pro Glu Ala Glu Gln Glu Leu Ala Asp
 210 215 220

Gly Tyr His Ile Glu Tyr Ala Gly Met Lys Trp Gly Met Phe Phe Val
 225 230 235 240

Gly Glu Tyr Ile Gly Ile Val Leu Val Ser Ala Leu Leu Ala Thr Leu
 245 250 255

Phe Phe Gly Gly Trp His Gly Pro Phe Leu Asp Thr Leu Pro Trp Leu
 260 265 270

Ser Phe Phe Tyr Phe Ala Ala Lys Thr Gly Phe Phe Ile Met Leu Phe
 275 280 285

Ile Leu Ile Arg Ala Ser Leu Pro Arg Pro Arg Tyr Asp Gln Val Met
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Ala Phe Ser Trp Lys Val Cys Leu Pro Leu Thr Leu Ile Asn Leu Leu
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Val Thr Gly Ala Leu Val Leu Ala Ala Ala Gln
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<210> 17

<211> 7347

<212> DNA

<213> Pseudomonas aeruginosa

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<211> 2448

<212> PRT

<213> Pseudomonas aeruginosa

<400> 18

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09743PC.ST25.txt

20

25

30

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 115 120 125

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Glu Gln Pro Val Leu Glu Leu Pro Phe Asp Arg Pro Arg Pro Val Arg
 245 250 255

Gln Ser His Arg Gly Ala Gln Phe Ile Leu Glu Leu Asp Ile Asp Leu
 260 265 270

Ser Gln Ala Leu Arg Arg Val Ala Gln Gln Glu Gly Ala Thr Ala Phe

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275

280

285

Ala Leu Leu Leu Ala Ser Phe Gln Ala Leu Leu Tyr Arg Tyr Ser Gly
 290 295 300

Gln Ala Asp Ile Arg Val Gly Val Pro Ile Ala Asn Arg Asn Arg Val
 305 310 315 320

Glu Thr Glu Arg Leu Ile Gly Phe Phe Val Asn Thr Gln Val Leu Lys
 325 330 335

Ala Asp Leu Asp Gly Arg Met Gly Phe Asp Glu Leu Leu Ala Gln Ala
 340 345 350

Arg Gln Arg Ala Leu Glu Ala Gln Ala His Gln Asp Leu Pro Phe Glu
 355 360 365

Gln Leu Val Glu Ala Leu Gln Pro Glu Arg Ser Leu Ser His Asn Pro
 370 375 380

Leu Phe Gln Val Leu Phe Asn Tyr Gln Ser Glu Ala Arg Gly Asn Gly
 385 390 395 400

Gln Ala Phe Arg Phe Asp Glu Leu Gln Met Glu Ser Val Gln Phe Asp
 405 410 415

Ser Arg Thr Ala Gln Phe Asp Leu Thr Leu Asp Leu Thr Asp Glu Glu
 420 425 430

Gln Arg Phe Cys Ala Val Phe Asp Tyr Ala Thr Asp Leu Phe Asp Ala
 435 440 445

Ser Thr Val Glu Arg Leu Ala Gly His Trp Arg Asn Leu Leu Arg Gly
 450 455 460

Ile Val Ala Asn Pro Arg Gln Arg Leu Gly Glu Leu Pro Leu Leu Asp
 465 470 475 480

Ala Pro Glu Arg Arg Gln Thr Leu Ser Glu Trp Asn Pro Ala Gln Arg
 485 490 495

Glu Cys Ala Val Gln Gly Thr Leu Gln Gln Arg Phe Glu Glu Gln Ala
 500 505 510

Arg Gln Arg Pro Gln Ala Val Ala Leu Ile Leu Asp Glu Gln Arg Leu
 515 520 525

Ser Tyr Gly Glu Leu Asn Ala Arg Ala Asn Arg Leu Ala His Cys Leu

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530

535

540

Ile Ala Arg Gly Val Gly Ala Asp Val Pro Val Gly Leu Ala Leu Glu
 545 550 555 560

Arg Ser Leu Asp Met Leu Val Gly Leu Leu Ala Ile Leu Lys Ala Gly
 565 570 575

Gly Ala Tyr Leu Pro Leu Asp Pro Ala Ala Pro Glu Glu Arg Leu Ala
 580 585 590

His Ile Leu Asp Asp Ser Gly Val Arg Leu Leu Leu Thr Gln Gly His
 595 600 605

Leu Leu Glu Arg Leu Pro Arg Gln Ala Gly Val Glu Val Leu Ala Ile
 610 615 620

Asp Gly Leu Val Leu Asp Gly Tyr Ala Glu Ser Asp Pro Leu Pro Thr
 625 630 635 640

Leu Ser Ala Asp Asn Leu Ala Tyr Val Ile Tyr Thr Ser Gly Ser Thr
 645 650 655

Gly Lys Pro Lys Gly Thr Leu Leu Thr His Arg Asn Ala Leu Arg Leu
 660 665 670

Phe Ser Ala Thr Glu Ala Trp Phe Gly Phe Asp Glu Arg Asp Val Trp
 675 680 685

Thr Leu Phe His Ser Tyr Ala Phe Asp Phe Ser Val Trp Glu Ile Phe
 690 695 700

Gly Ala Leu Leu Tyr Gly Gly Cys Leu Val Ile Val Pro Gln Trp Val
 705 710 715 720

Ser Arg Ser Pro Glu Asp Phe Tyr Arg Leu Leu Cys Arg Glu Gly Val
 725 730 735

Thr Val Leu Asn Gln Thr Pro Ser Ala Phe Lys Gln Leu Met Ala Val
 740 745 750

Ala Cys Ser Ala Asp Met Ala Thr Gln Gln Pro Ala Leu Arg Tyr Val
 755 760 765

Ile Phe Gly Gly Glu Ala Leu Asp Leu Gln Ser Leu Arg Pro Trp Phe
 770 775 780

Gln Arg Phe Gly Asp Arg Gln Pro Gln Leu Val Asn Met Tyr Gly Ile

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785 790 795 800
 Thr Glu Thr Thr Val His Val Thr Tyr Arg Pro Val Ser Glu Ala Asp
 805 810 815
 Leu Glu Gly Gly Leu Val Ser Pro Ile Gly Gly Thr Ile Pro Asp Leu
 820 825 830
 Ser Trp Tyr Ile Leu Asp Arg Asp Leu Asn Pro Val Pro Arg Gly Ala
 835 840 845
 Val Gly Glu Leu Tyr Ile Gly Arg Ala Gly Leu Ala Arg Gly Tyr Leu
 850 855 860
 Arg Arg Pro Gly Leu Ser Ala Thr Arg Phe Val Pro Asn Pro Phe Pro
 865 870 875 880
 Gly Gly Ala Gly Glu Arg Leu Tyr Arg Thr Gly Asp Leu Ala Arg Phe
 885 890 895
 Gln Ala Asp Gly Asn Ile Glu Tyr Ile Gly Arg Ile Asp His Gln Val
 900 905 910
 Lys Val Arg Gly Phe Arg Ile Glu Leu Gly Glu Ile Glu Ala Ala Leu
 915 920 925
 Ala Gly Leu Ala Gly Val Arg Asp Ala Val Val Leu Ala His Asp Gly
 930 935 940
 Val Gly Gly Thr Gln Leu Val Gly Tyr Val Val Ala Asp Ser Ala Glu
 945 950 955 960
 Asp Ala Glu Arg Leu Arg Glu Ser Leu Arg Glu Ser Leu Lys Arg His
 965 970 975
 Leu Pro Asp Tyr Met Val Pro Ala His Leu Met Leu Leu Glu Arg Met
 980 985 990
 Pro Leu Thr Val Asn Gly Lys Leu Asp Arg Gln Ala Leu Pro Gln Pro
 995 1000 1005
 Asp Ala Ser Leu Ser Gln Gln Ala Tyr Arg Ala Pro Gly Ser Glu
 1010 1015 1020
 Leu Glu Gln Arg Ile Ala Ala Ile Trp Ser Glu Ile Leu Gly Val
 1025 1030 1035
 Glu Arg Val Gly Leu Asp Asp Asn Phe Phe Glu Leu Gly Gly His

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1040		1045		1050
Ser Leu Leu Ala Thr Arg Val	Ile Ser Arg Val Arg	Gln Glu Gln		
1055	1060	1065		
Gln Leu Asp Ala Ser Leu Lys	Ala Leu Phe Glu Arg	Pro Val Leu		
1070	1075	1080		
Glu Ala Phe Ala Gln Gly Leu	Glu Arg Thr Thr Asp	Ala Val Ser		
1085	1090	1095		
Thr Ile Pro Leu Ala Asp Arg	Gln Gln Pro Leu Ala	Leu Ser Phe		
1100	1105	1110		
Ala Gln Glu Arg Gln Trp Phe	Leu Trp Gln Leu Glu	Pro Glu Ser		
1115	1120	1125		
Ala Ala Tyr His Ile Pro Ser	Ala Leu Arg Leu Arg	Gly Arg Leu		
1130	1135	1140		
Asp Val Asp Ala Leu Gln Arg	Ser Phe Asp Ser Leu	Val Ala Arg		
1145	1150	1155		
His Glu Thr Leu Arg Thr Arg	Phe Arg Leu Glu Gly	Gly Arg Ser		
1160	1165	1170		
Tyr Gln Gln Val Gln Pro Ala	Val Ser Val Ser Ile	Glu Arg Glu		
1175	1180	1185		
Gln Phe Gly Glu Glu Gly Leu	Ile Glu Arg Ile Gln	Ala Ile Val		
1190	1195	1200		
Val Gln Pro Phe Asp Leu Glu	Arg Gly Pro Leu Leu	Arg Val Asn		
1205	1210	1215		
Leu Leu Gln Leu Ala Glu Asp	Asp His Val Leu Val	Leu Val Gln		
1220	1225	1230		
His His Ile Val Ser Asp Gly	Trp Ser Met Gln Val	Met Val Glu		
1235	1240	1245		
Glu Leu Val Gln Leu Tyr Ala	Ala Tyr Ser Gln Gly	Leu Asp Val		
1250	1255	1260		
Val Leu Pro Ala Leu Pro Ile	Gln Tyr Ala Asp Tyr	Ala Leu Trp		
1265	1270	1275		
Gln Arg Ser Trp Met Glu Ala	Gly Glu Lys Glu Arg	Gln Leu Ala		

09743PC.ST25.txt

1280		1285		1290
Tyr Trp Thr Gly Leu Leu Gly Gly Glu Gln Pro Val Leu Glu Leu				
1295		1300		1305
Pro Phe Asp Arg Pro Arg Pro Ala Arg Gln Ser His Arg Gly Ala				
1310		1315		1320
Gln Leu Gly Phe Glu Leu Ser Arg Glu Leu Val Glu Ala Val Arg				
1325		1330		1335
Ala Leu Ala Gln Arg Glu Gly Ala Ser Ser Phe Met Leu Leu Leu				
1340		1345		1350
Ala Ser Phe Gln Ala Leu Leu Tyr Arg Tyr Ser Gly Gln Ala Asp				
1355		1360		1365
Ile Arg Val Gly Val Pro Ile Ala Asn Arg Asn Arg Val Glu Thr				
1370		1375		1380
Glu Arg Leu Ile Gly Phe Phe Val Asn Thr Gln Val Leu Lys Ala				
1385		1390		1395
Asp Leu Asp Gly Arg Met Gly Phe Asp Glu Leu Leu Ala Gln Ala				
1400		1405		1410
Arg Gln Arg Ala Leu Glu Ala Gln Ala His Gln Asp Leu Pro Phe				
1415		1420		1425
Glu Gln Leu Val Glu Ala Leu Gln Pro Glu Arg Asn Ala Ser His				
1430		1435		1440
Asn Pro Leu Phe Gln Val Leu Phe Asn His Gln Ser Glu Ile Arg				
1445		1450		1455
Ser Val Thr Pro Glu Val Gln Leu Glu Asp Leu Arg Leu Glu Gly				
1460		1465		1470
Leu Ala Trp Asp Gly Gln Thr Ala Gln Phe Asp Leu Thr Leu Asp				
1475		1480		1485
Ile Gln Glu Asp Glu Asn Gly Ile Trp Ala Ser Phe Asp Tyr Ala				
1490		1495		1500
Thr Asp Leu Phe Asp Ala Ser Thr Val Glu Arg Leu Ala Gly His				
1505		1510		1515
Trp Arg Asn Leu Leu Arg Gly Ile Val Ala Asn Pro Arg Gln Arg				

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1520 1525 1530
 Leu Gly Glu Leu Pro Leu Leu Asp Ala Pro Glu Arg Arg Gln Thr
 1535 1540 1545
 Leu Ser Glu Trp Asn Pro Ala Gln Arg Glu Cys Ala Val Gln Gly
 1550 1555 1560
 Thr Leu Gln Gln Arg Phe Glu Glu Gln Ala Arg Gln Arg Pro Gln
 1565 1570 1575
 Ala Val Ala Leu Ile Leu Asp Glu Gln Arg Leu Ser Tyr Gly Glu
 1580 1585 1590
 Leu Asn Ala Arg Ala Asn Arg Leu Ala His Cys Leu Ile Ala Arg
 1595 1600 1605
 Gly Val Gly Ala Asp Val Pro Val Gly Leu Ala Leu Glu Arg Ser
 1610 1615 1620
 Leu Asp Met Leu Val Gly Leu Leu Ala Ile Leu Lys Ala Gly Gly
 1625 1630 1635
 Ala Tyr Leu Pro Leu Asp Pro Ala Ala Pro Glu Glu Arg Leu Ala
 1640 1645 1650
 His Ile Leu Asp Asp Ser Gly Val Arg Leu Leu Leu Thr Gln Gly
 1655 1660 1665
 His Leu Leu Glu Arg Leu Pro Arg Gln Ala Gly Val Glu Val Leu
 1670 1675 1680
 Ala Ile Asp Gly Leu Val Leu Asp Gly Tyr Ala Glu Ser Asp Pro
 1685 1690 1695
 Leu Pro Thr Leu Ser Ala Asp Asn Leu Ala Tyr Val Ile Tyr Thr
 1700 1705 1710
 Ser Gly Ser Thr Gly Lys Pro Lys Gly Thr Leu Leu Thr His Arg
 1715 1720 1725
 Asn Ala Leu Arg Leu Phe Ser Ala Thr Glu Ala Trp Phe Gly Phe
 1730 1735 1740
 Asp Glu Arg Asp Val Trp Thr Leu Phe His Ser Tyr Ala Phe Asp
 1745 1750 1755
 Phe Ser Val Trp Glu Ile Phe Gly Ala Leu Leu Tyr Gly Gly Arg

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1760 1765 1770
 Leu Val Ile Val Pro Gln Trp Val Ser Arg Ser Pro Glu Asp Phe
 1775 1780 1785
 Tyr Arg Leu Leu Cys Arg Glu Gly Val Thr Val Leu Asn Gln Thr
 1790 1795 1800
 Pro Ser Ala Phe Lys Gln Leu Met Ala Val Ala Cys Ser Ala Asp
 1805 1810 1815
 Met Ala Thr Gln Gln Pro Ala Leu Arg Tyr Val Ile Phe Gly Gly
 1820 1825 1830
 Glu Ala Leu Asp Leu Gln Ser Leu Arg Pro Trp Phe Gln Arg Phe
 1835 1840 1845
 Gly Asp Arg Gln Pro Gln Leu Val Asn Met Tyr Gly Ile Thr Glu
 1850 1855 1860
 Thr Thr Val His Val Thr Tyr Arg Pro Val Ser Glu Ala Asp Leu
 1865 1870 1875
 Lys Gly Gly Leu Val Ser Pro Ile Gly Gly Thr Ile Pro Asp Leu
 1880 1885 1890
 Ser Trp Tyr Ile Leu Asp Arg Asp Leu Asn Pro Val Pro Arg Gly
 1895 1900 1905
 Ala Val Gly Glu Leu Tyr Ile Gly Arg Ala Gly Leu Ala Arg Gly
 1910 1915 1920
 Tyr Leu Arg Arg Pro Gly Leu Ser Ala Thr Arg Phe Val Pro Asn
 1925 1930 1935
 Pro Phe Pro Gly Gly Ala Gly Glu Arg Leu Tyr Arg Thr Gly Asp
 1940 1945 1950
 Leu Ala Arg Phe Gln Ala Asp Gly Asn Ile Glu Tyr Ile Gly Arg
 1955 1960 1965
 Ile Asp His Gln Val Lys Val Arg Gly Phe Arg Ile Glu Leu Gly
 1970 1975 1980
 Glu Ile Glu Ala Ala Leu Ala Gly Leu Ala Gly Val Arg Asp Ala
 1985 1990 1995
 Val Val Leu Ala His Asp Gly Val Gly Gly Thr Gln Leu Val Gly

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2000

2005

2010

Tyr Val Val Ala Asp Ser Ala Glu Asp Ala Glu Arg Leu Arg Glu
 2015 2020 2025
 Ser Leu Arg Glu Ser Leu Lys Arg His Leu Pro Asp Tyr Met Val
 2030 2035 2040
 Pro Ala His Leu Met Leu Leu Glu Arg Met Pro Leu Thr Val Asn
 2045 2050 2055
 Gly Lys Leu Asp Arg Gln Ala Leu Pro Gln Pro Asp Ala Ser Leu
 2060 2065 2070
 Ser Gln Gln Ala Tyr Arg Ala Pro Gly Ser Glu Leu Glu Gln Arg
 2075 2080 2085
 Ile Ala Ala Ile Trp Ala Glu Ile Leu Gly Val Glu Arg Val Gly
 2090 2095 2100
 Leu Asp Asp Asn Phe Phe Glu Leu Gly Gly His Ser Leu Leu Leu
 2105 2110 2115
 Leu Met Leu Lys Glu Arg Ile Gly Asp Thr Cys Gln Ala Thr Leu
 2120 2125 2130
 Ser Ile Ser Gln Leu Met Thr His Ala Ser Val Ala Glu Gln Ala
 2135 2140 2145
 Ala Cys Ile Glu Gly Gln Ala Arg Glu Ser Leu Leu Val Pro Leu
 2150 2155 2160
 Asn Gly Arg Arg Glu Gly Ser Pro Leu Phe Met Phe His Pro Ser
 2165 2170 2175
 Phe Gly Ser Val His Cys Tyr Lys Thr Leu Ala Met Ala Leu Arg
 2180 2185 2190
 Asp Arg His Pro Val Lys Gly Val Val Cys Arg Ala Leu Leu Gly
 2195 2200 2205
 Ala Gly Arg Glu Val Pro Glu Trp Asp Asp Met Val Ala Glu Tyr
 2210 2215 2220
 Ala Glu Gln Leu Leu Gln Glu His Pro Glu Gly Val Phe Asn Leu
 2225 2230 2235
 Ala Gly Trp Ser Leu Gly Gly Asn Leu Ala Met Asp Val Ala Ala

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2240

2245

2250

Arg Leu Glu Gln Arg Gly Arg Gln Val Ala Phe Val Gly Trp Ile
 2255 2260 2265
 Asp Ala Pro Ala Pro Val Arg Val Glu Ala Phe Trp Asn Glu Ile
 2270 2275 2280
 Gly Pro Thr Pro Glu Ala Val Pro Asn Leu Ser Val Gly Glu Met
 2285 2290 2295
 Arg Val Glu Leu Leu Gly Val Met Phe Pro Glu Arg Ala Glu His
 2300 2305 2310
 Ile Glu Arg Ala Trp Ser Ser Ile Cys Ser Ala Thr Thr Asp Asp
 2315 2320 2325
 Glu Gln Arg Trp Thr Arg Met Ser Asp Trp Ala Glu Ala Glu Ile
 2330 2335 2340
 Gly Ala Glu Phe Ala Thr Leu Arg Ser Glu Ile Ala Gln Ser Asn
 2345 2350 2355
 Glu Leu Glu Val Ser Trp Glu Leu Lys Gln Ile Leu Asp Glu Arg
 2360 2365 2370
 Leu Lys Ala Met Asp Tyr Pro Arg Leu Thr Ala Lys Val Ser Leu
 2375 2380 2385
 Trp Trp Ala Ala Arg Ser Thr Asn Ala Ile Gln Arg Ser Ala Val
 2390 2395 2400
 Glu Arg Ser Met Ala Glu Ala Ile Gly Ala Glu Arg Val Glu Pro
 2405 2410 2415
 Val Arg Val Leu Asp Thr Arg His Asp Lys Ile Ile Asp His Pro
 2420 2425 2430
 Glu Phe Val Gln Ser Phe Arg Ala Ala Leu Glu Arg Ala Gly Arg
 2435 2440 2445

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<213> Pseudomonas aeruginosa

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 ctggccggcc tgctgggtcat ttccaaattg ccggtagcgc agtaccceaa tgtcgcgccg 120

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gtcaccagtg tgctcgagga gtcgctgaac ggcgccaagg gcctgctcta cttcgagtcg	240
accaacaact ccaacggcac cgccgagatc gtcgtcacct tcgagccggg caccgatccg	300
gacctggccc aggtggacgt gcagaaccgc ctgaagaaag ccgagggcgcg catgccgcag	360
gcggtgctga cccagggcct gcaggtcgag cagaccagcg ccggtttcct gctgatctat	420
gcgctcagct acaaggaagg cgctcagcgc agcgacacca ccgccctcgg cgactacgcc	480
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gcgatccaga ccgctaccct ggtgaaacag cgtctcgccg aactgtcggc gttcttcccc	960
gaggacatgc agtacagcgt gccctacgac acctcgcgct tcgtcgacgt ggccatcgag	1020
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atggccgtgt cgccgccacc gatcaacggt ctgggtaact ccggcggtt cgcattgcgc	2040

09743PC.ST25.txt

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gccggggagt ga 3132

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 <211> 1043
 <212> PRT
 <213> *Pseudomonas aeruginosa*

<400> 20

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Leu Phe Ile Ser Leu Ala Gly Leu Leu Val Ile Ser Lys Leu Pro Val
 20 25 30

Ala Gln Tyr Pro Asn Val Ala Pro Pro Gln Ile Thr Ile Thr Ala Thr
 35 40 45

Tyr Pro Gly Ala Ser Ala Lys Val Leu Val Asp Ser Val Thr Ser Val
 50 55 60

Leu Glu Glu Ser Leu Asn Gly Ala Lys Gly Leu Leu Tyr Phe Glu Ser

09743PC.ST25.txt

```

65              70              75              80
Thr Asn Asn Ser Asn Gly Thr Ala Glu Ile Val Val Thr Phe Glu Pro
      85              90              95

Gly Thr Asp Pro Asp Leu Ala Gln Val Asp Val Gln Asn Arg Leu Lys
      100              105              110

Lys Ala Glu Ala Arg Met Pro Gln Ala Val Leu Thr Gln Gly Leu Gln
      115              120              125

Val Glu Gln Thr Ser Ala Gly Phe Leu Leu Ile Tyr Ala Leu Ser Tyr
      130              135              140

Lys Glu Gly Ala Gln Arg Ser Asp Thr Thr Ala Leu Gly Asp Tyr Ala
      145              150              155              160

Ala Arg Asn Ile Asn Asn Glu Leu Arg Arg Leu Pro Gly Val Gly Lys
      165              170              175

Leu Gln Phe Phe Ser Ser Glu Ala Ala Met Arg Val Trp Ile Asp Pro
      180              185              190

Gln Lys Leu Val Gly Phe Gly Leu Ser Ile Asp Asp Val Ser Asn Ala
      195              200              205

Ile Arg Gly Gln Asn Val Gln Val Pro Ala Gly Ala Phe Gly Ser Ala
      210              215              220

Pro Gly Ser Ser Ala Gln Glu Leu Thr Ala Thr Leu Ala Val Lys Gly
      225              230              235              240

Thr Leu Asp Asp Pro Gln Glu Phe Gly Gln Val Val Leu Arg Ala Asn
      245              250              255

Glu Asp Gly Ser Leu Val Arg Leu Ala Asp Val Ala Arg Leu Glu Leu
      260              265              270

Gly Lys Glu Ser Tyr Asn Ile Ser Ser Arg Leu Asn Gly Thr Pro Thr
      275              280              285

Val Gly Gly Ala Ile Gln Leu Ser Pro Gly Ala Asn Ala Ile Gln Thr
      290              295              300

Ala Thr Leu Val Lys Gln Arg Leu Ala Glu Leu Ser Ala Phe Phe Pro
      305              310              315              320

Glu Asp Met Gln Tyr Ser Val Pro Tyr Asp Thr Ser Arg Phe Val Asp

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09743PC.ST25.txt

325

330

335

Val Ala Ile Glu Lys Val Ile His Thr Leu Ile Glu Ala Met Val Leu
 340 345 350

Val Phe Leu Val Met Phe Leu Phe Leu Gln Asn Val Arg Tyr Thr Leu
 355 360 365

Ile Pro Ser Ile Val Val Pro Val Cys Leu Leu Gly Thr Leu Met Val
 370 375 380

Met Tyr Leu Leu Gly Phe Ser Val Asn Met Met Thr Met Phe Gly Met
 385 390 395 400

Val Leu Ala Ile Gly Ile Leu Val Asp Asp Ala Ile Val Val Val Glu
 405 410 415

Asn Val Glu Arg Ile Met Ala Glu Glu Gly Ile Ser Pro Ala Glu Ala
 420 425 430

Thr Val Lys Ala Met Lys Gln Val Ser Gly Ala Ile Val Gly Ile Thr
 435 440 445

Leu Val Leu Ser Ala Val Phe Leu Pro Leu Ala Phe Met Ala Gly Ser
 450 455 460

Val Gly Val Ile Tyr Gln Gln Phe Ser Val Ser Leu Ala Val Ser Ile
 465 470 475 480

Leu Phe Ser Gly Phe Leu Ala Leu Thr Phe Thr Pro Ala Leu Cys Ala
 485 490 495

Thr Leu Leu Lys Pro Ile Pro Glu Gly His His Glu Lys Arg Gly Phe
 500 505 510

Phe Gly Ala Phe Asn Arg Gly Phe Ala Arg Val Thr Glu Arg Tyr Ser
 515 520 525

Leu Leu Asn Ser Lys Leu Val Ala Arg Ala Gly Arg Phe Met Leu Val
 530 535 540

Tyr Ala Gly Leu Val Ala Met Leu Gly Tyr Phe Tyr Leu Arg Leu Pro
 545 550 555 560

Glu Ala Phe Val Pro Ala Glu Asp Leu Gly Tyr Met Val Val Asp Val
 565 570 575

Gln Leu Pro Pro Gly Ala Ser Arg Val Arg Thr Asp Ala Thr Gly Glu

09743PC.ST25.txt

580

585

590

Glu Leu Glu Arg Phe Leu Lys Ser Arg Glu Ala Val Ala Ser Val Phe
 595 600 605

Leu Ile Ser Gly Phe Ser Phe Ser Gly Gln Gly Asp Asn Ala Ala Leu
 610 615 620

Ala Phe Pro Thr Phe Lys Asp Trp Ser Glu Arg Gly Ala Glu Gln Ser
 625 630 635 640

Ala Ala Ala Glu Ile Ala Ala Leu Asn Glu His Phe Ala Leu Pro Asp
 645 650 655

Asp Gly Thr Val Met Ala Val Ser Pro Pro Pro Ile Asn Gly Leu Gly
 660 665 670

Asn Ser Gly Gly Phe Ala Leu Arg Leu Met Asp Arg Ser Gly Val Gly
 675 680 685

Arg Glu Ala Leu Leu Gln Ala Arg Asp Thr Leu Leu Gly Glu Ile Gln
 690 695 700

Thr Asn Pro Lys Phe Leu Tyr Ala Met Met Glu Gly Leu Ala Glu Ala
 705 710 715 720

Pro Gln Leu Arg Leu Leu Ile Asp Arg Glu Lys Ala Arg Ala Leu Gly
 725 730 735

Val Ser Phe Glu Thr Ile Ser Gly Thr Leu Ser Ala Ala Phe Gly Ser
 740 745 750

Glu Val Ile Asn Asp Phe Thr Asn Ala Gly Arg Gln Gln Arg Val Val
 755 760 765

Ile Gln Ala Glu Gln Gly Asn Arg Met Thr Pro Glu Ser Val Leu Glu
 770 775 780

Leu Tyr Val Pro Asn Ala Ala Gly Asn Leu Val Pro Leu Ser Ala Phe
 785 790 795 800

Val Ser Val Lys Trp Glu Glu Gly Pro Val Gln Leu Val Arg Tyr Asn
 805 810 815

Gly Tyr Pro Ser Ile Arg Ile Val Gly Asp Ala Ala Pro Gly Phe Ser
 820 825 830

Thr Gly Glu Ala Met Ala Glu Met Glu Arg Leu Ala Ser Gln Leu Pro

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835

840

845

Ala Gly Ile Gly Tyr Glu Trp Thr Gly Leu Ser Tyr Gln Glu Lys Val
 850 855 860

Ser Ala Gly Gln Ala Thr Ser Leu Phe Ala Leu Ala Ile Leu Val Val
 865 870 875 880

Phe Leu Leu Leu Val Ala Leu Tyr Glu Ser Trp Ser Ile Pro Leu Ser
 885 890 895

Val Met Leu Ile Val Pro Ile Gly Ala Ile Gly Ala Val Leu Ala Val
 900 905 910

Met Val Ser Gly Met Ser Asn Asp Val Tyr Phe Lys Val Gly Leu Ile
 915 920 925

Thr Ile Ile Gly Leu Ser Ala Lys Asn Ala Ile Leu Ile Val Glu Phe
 930 935 940

Ala Lys Glu Leu Trp Glu Gln Gly His Ser Leu Arg Asp Ala Ala Ile
 945 950 955 960

Glu Ala Ala Arg Leu Arg Phe Arg Pro Ile Ile Met Thr Ser Met Ala
 965 970 975

Phe Ile Leu Gly Val Ile Pro Leu Ala Leu Ala Ser Gly Ala Gly Ala
 980 985 990

Ala Ser Gln Arg Ala Ile Gly Thr Gly Val Ile Gly Gly Met Leu Ser
 995 1000 1005

Ala Thr Phe Leu Gly Val Leu Phe Val Pro Ile Cys Phe Val Trp
 1010 1015 1020

Leu Leu Ser Leu Leu Arg Ser Lys Pro Ala Pro Ile Glu Gln Ala
 1025 1030 1035

Ala Ser Ala Gly Glu
 1040

<210> 21

<211> 642

<212> DNA

<213> Pseudomonas aeruginosa

<400> 21

atgaacgatg cttctccccg tctgaccgaa cgcggcaggc aacgccgccg cgccatgctc 60

gacgccgcta cccaggcctt tctcgaacac ggtttcgaag gcaccaccct ggacatgggtg 120

09743PC.ST25.txt

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atagaacggg cgggtggttc acgggggacc ctgtacagct ccttcggcgg caaggagggc 180
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ccgcgccccg ccgccacgct gagcgccacc ctcgagcatt tcggccggcg ctttctcacc 300
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ttccagccga ccatggcgct gctggaaacc cgcctcaagc tgcggtgga catcatcgcc 600
tgctacctgg aacacctgtc gcagagcccc gcgcagggct ga 642

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<210> 22
 <211> 213
 <212> PRT
 <213> *Pseudomonas aeruginosa*

<400> 22

Met Asn Asp Ala Ser Pro Arg Leu Thr Glu Arg Gly Arg Gln Arg Arg
 1 5 10 15

Arg Ala Met Leu Asp Ala Ala Thr Gln Ala Phe Leu Glu His Gly Phe
 20 25 30

Glu Gly Thr Thr Leu Asp Met Val Ile Glu Arg Ala Gly Gly Ser Arg
 35 40 45

Gly Thr Leu Tyr Ser Ser Phe Gly Gly Lys Glu Gly Leu Phe Ala Ala
 50 55 60

Val Ile Ala His Met Ile Gly Glu Ile Phe Asp Asp Ser Ala Asp Gln
 65 70 75 80

Pro Arg Pro Ala Ala Thr Leu Ser Ala Thr Leu Glu His Phe Gly Arg
 85 90 95

Arg Phe Leu Thr Ser Leu Leu Asp Pro Arg Cys Gln Ser Leu Tyr Arg
 100 105 110

Leu Val Val Ala Glu Ser Pro Arg Phe Pro Ala Ile Gly Lys Ser Phe
 115 120 125

Tyr Glu Gln Gly Pro Gln Gln Ser Tyr Leu Leu Leu Ser Glu Arg Leu
 130 135 140

Ala Ala Val Ala Pro His Met Asp Glu Glu Thr Leu Tyr Ala Val Ala

09743PC.ST25.txt

145 150 155 160

Cys Gln Phe Leu Glu Met Leu Lys Ala Asp Leu Phe Leu Lys Ala Leu
 165 170 175

Ser Val Ala Asp Phe Gln Pro Thr Met Ala Leu Leu Glu Thr Arg Leu
 180 185 190

Lys Leu Ser Val Asp Ile Ile Ala Cys Tyr Leu Glu His Leu Ser Gln
 195 200 205

Ser Pro Ala Gln Gly
 210

<210> 23
 <211> 1017
 <212> DNA
 <213> Pseudomonas aeruginosa

<400> 23
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 gacgccagct tccgtcggtta tttccgctgg cagggagggg accgcagcct ggtgggtgatg 180
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 ccggagccgc gcgtgcatgc cgcgctgaac cgttactgga agaaggcgac ctgggcccgc 780
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 tacctgggtg acgtgccgcg cttcttcctg tatctggaaa ccgccgtggc gcgccgtccc 960
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<210> 24
 <211> 338
 <212> PRT
 <213> Pseudomonas aeruginosa

09743PC.ST25.txt

<400> 24

Met Ser Asp Asp Ala Arg Phe Gln Gln Leu Asn Cys Trp Leu Asp Ser
 1 5 10 15

Cys Leu Pro Glu Leu Phe Val Ala Glu Gly Trp Gly Glu Val Pro Pro
 20 25 30

Ala Glu Leu Ile Pro Ala Ser Ser Asp Ala Ser Phe Arg Arg Tyr Phe
 35 40 45

Arg Trp Gln Gly Gly Asp Arg Ser Leu Val Val Met Asp Ala Pro Pro
 50 55 60

Pro Gln Glu Asp Cys Arg Pro Phe Val Lys Val Ala Gly Leu Leu Ala
 65 70 75 80

Gly Ala Gly Val His Val Pro Arg Ile Leu Ala Gln Asp Leu Glu Asn
 85 90 95

Gly Phe Leu Leu Leu Ser Asp Leu Gly Arg Gln Thr Tyr Leu Asp Val
 100 105 110

Leu His Pro Gly Asn Ala Asp Glu Leu Phe Glu Pro Ala Leu Asp Ala
 115 120 125

Leu Ile Ala Phe Gln Lys Val Asp Val Ala Gly Val Leu Pro Ala Tyr
 130 135 140

Asp Glu Ala Val Leu Arg Arg Glu Leu Gln Leu Phe Pro Asp Trp Tyr
 145 150 155 160

Leu Ala Arg His Leu Gly Val Glu Leu Glu Gly Glu Thr Leu Ala Arg
 165 170 175

Trp Lys Arg Ile Cys Asp Leu Leu Val Arg Ser Ala Leu Glu Gln Pro
 180 185 190

Arg Val Phe Val His Arg Asp Tyr Met Pro Arg Asn Leu Met Leu Ser
 195 200 205

Glu Pro Asn Pro Gly Val Leu Asp Phe Gln Asp Ala Leu His Gly Pro
 210 215 220

Val Thr Tyr Asp Val Thr Cys Leu Tyr Lys Asp Ala Phe Val Ser Trp
 225 230 235 240

Pro Glu Pro Arg Val His Ala Ala Leu Asn Arg Tyr Trp Lys Lys Ala

09743PC.ST25.txt

245

250

255

Thr Trp Ala Gly Ile Pro Leu Pro Pro Ser Phe Glu Asp Phe Leu Arg
 260 265 270

Ala Ser Asp Leu Met Gly Val Gln Arg His Leu Lys Val Ile Gly Ile
 275 280 285

Phe Ala Arg Ile Cys His Arg Asp Gly Lys Pro Arg Tyr Leu Gly Asp
 290 295 300

Val Pro Arg Phe Phe Arg Tyr Leu Glu Thr Ala Val Ala Arg Arg Pro
 305 310 315 320

Glu Leu Ala Glu Leu Gly Glu Leu Leu Ala Ser Leu Pro Gln Gly Ala
 325 330 335

Glu Ala

<210> 25
 <211> 3270
 <212> DNA
 <213> Pseudomonas aeruginosa

<400> 25
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 cagctgcccc cggcgcgct accgcgggcg ggacggatct acctgttcca ggacggcaag 300
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 gggcgcgacc agcgtgcgga caagcgtccg gccttaggca agacacaagc gctgatcctg 420
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 cgcaagagt cgctgggtgtg ccagttgcag cgacgccagc aggaattggc gccctgctg 780
 aagcaggctc cgccctctgc gctacctact ctggaagccg gagaggacgt actggaaacc 840
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 ttgcgccacg ctgcggcgca ggcgcgccac tgcgccgctt acttgcgcag cctcaatgca 960

09743PC.ST25.txt

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 gaggagcgac agtcttgccg aatccacctg acgcagcagg tcgagcatct ggttgccctg 1140
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 gctgtcgggtg cagtaatcga ttaacagcc gctggaggaa gccatgcaaa gctgcttttc 2160
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 cgcactgcgc tatcctgcat cgaccccaag ttgcaggcgc tggaggcaaa cgattggggc 2820
 gtggtgctga gttccccgct cctggccatg ttcgagaatg gccagaaggc gttccgcctg 2880

09743PC.ST25.txt

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gtggcccagg agtttctcag cagcttgccg atcgatccgg gcaccctggt cggcgtcaag 2940
cgctaccatc ggggtccccgc gggccccgcc aagctcgaag ccttgccggt ggatgctgcc 3000
agcgtgctct atgtgctgcc ggccagcctg ccgattccgc agttgtctcc tcgggccccgc 3060
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cagcctgagc agcggcttgt cctgcctcaa cccagcccga agagttggag tgcattcaca 3180
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ttgatagaga acagtgagtt caacgtatga 3270

```

```

<210> 26
<211> 1089
<212> PRT
<213> Pseudomonas aeruginosa

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```

<400> 26

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Met Ser Gly Phe Gln Asp Gln Ser Ile Asp Glu Gly Val Arg Lys Arg
1           5           10           15

```

```

Thr Ala Tyr Gln Asn Asp Arg Arg Ala Arg Leu Ala Leu Asn Val Glu
20           25           30

```

```

Arg Gln Asp Gly Gly Ile Leu Gln Ile Pro Val Ala Ser Asp Met Leu
35           40           45

```

```

Gly His Glu Glu His Glu Arg Ile Gln Gln Asn Thr Phe Leu Ala Val
50           55           60

```

```

Met Pro Leu Val Arg Leu Pro Thr Leu Gly Lys Ala Gly Tyr Gly Asp
65           70           75           80

```

```

Gln Leu Pro Ala Gly Ala Leu Pro Arg Ala Gly Arg Ile Tyr Leu Phe
85           90           95

```

```

Gln Asp Gly Lys Leu Trp Arg Glu Leu Glu Cys Asp Gly Lys Gly Asn
100          105          110

```

```

Leu Phe Glu Val Asp Leu Leu Gln Gly Arg Ser Gln Arg Ala Asp Lys
115          120          125

```

```

Arg Pro Ala Leu Gly Lys Thr Gln Ala Leu Ile Leu Val Pro Val Leu
130          135          140

```

```

Val Lys Gly Gln Phe Val Ile Pro Arg Tyr Thr Met Ala Tyr Ser Glu
145          150          155          160

```

```

Thr Pro Trp Pro Trp Ser Tyr Ile Asp Trp Leu Glu Glu Asp Pro Gln

```

09743PC.ST25.txt

165

170

175

Arg Val Asn Arg Arg Cys Gln Gln Met Ala Ser Ala Trp Asn Ala Ser
 180 185 190

Val Ala Asn Gln His Trp Lys Ala Ser Ile His Gln Pro Ala Leu Val
 195 200 205

Ile Asp His His Ala Gln Gly Leu Arg Pro Arg Asp Phe Asn Val Glu
 210 215 220

Ser Ala Leu Glu Asp Pro Ala Glu Phe Thr Pro Glu Phe Ala Ala Phe
 225 230 235 240

Arg Glu Glu Ser Leu Val Cys Gln Leu Gln Arg Arg Gln Gln Glu Leu
 245 250 255

Ala Pro Leu Leu Lys Gln Ala Pro Pro Ser Ala Leu Pro Thr Leu Glu
 260 265 270

Ala Gly Glu Asp Val Leu Glu Thr Leu Lys Leu Arg Gly His Pro Asn
 275 280 285

Leu Ile Gly Leu Met Leu Asp Asp Ser Leu Phe Ala Leu Arg His Ala
 290 295 300

Ala Ala Gln Ala Arg His Cys Ala Ala Tyr Leu Arg Ser Leu Asn Ala
 305 310 315 320

Leu Leu Pro His Arg Pro Asn Gly Arg Tyr Ala Gln Val Leu Ser Asn
 325 330 335

Met Leu Asp Gly Pro Leu Ala Lys Leu Arg Gly Glu Val Asp Gln Ala
 340 345 350

Glu Leu Asp Glu Ala Ile Phe Ala Glu Glu Arg Gln Ser Cys Arg Ile
 355 360 365

His Leu Thr Gln Gln Val Glu His Leu Val Ala Leu Leu Glu Gly Pro
 370 375 380

Leu His Pro Val Leu Gln Asp Trp Thr His Gln Cys Asp Glu Ala Leu
 385 390 395 400

Leu Glu Pro Tyr Ser Leu Met Ser Glu Ala Leu Ala Ala Leu Asn Gln
 405 410 415

Leu Pro Asp Arg Cys Asp Ala Leu Tyr Ser Gly Thr Ala Tyr Arg Ala

09743PC.ST25.txt

420

425

430

Leu Ala Ala His Val Glu Arg Val Val Ser Thr Val Leu Gln Ala Ser
 435 440 445

His Pro Leu Gly Ala Met Leu Leu Ala Lys Asp Glu Gly Gln Leu Pro
 450 455 460

Glu Pro Val Arg Arg Leu Gln Ala Leu Arg Asp Ser Pro Arg Thr Pro
 465 470 475 480

Asp Pro Asp Ala Met Gly Leu Ser Thr Leu Met Leu Gly Ala Ser Leu
 485 490 495

Leu Gly Glu Val Asp Gln Pro Ser Ala Gly Lys Ser Leu Ala Tyr Phe
 500 505 510

Leu Gly Asp Leu Leu Asp Val Phe Gly Ala Ser Val Val Glu Gln Leu
 515 520 525

Gly Arg Leu Ser Gln Gly Ala Thr Gln Ile Gln Leu Asp Arg Leu Phe
 530 535 540

Ala Pro Thr Phe Asn Thr Leu Ser Ala Leu Ser Val Lys Met Lys Gly
 545 550 555 560

Ile Arg Leu Leu Pro Asp Ser Gln Val Pro Leu Asp Met Val Val Val
 565 570 575

Gly Val Arg Gly Ala Gly Leu Arg Asn Gly Leu Thr Glu Val Glu Arg
 580 585 590

Gln Glu Leu Arg Arg Lys Ser Tyr Arg Arg Ala Ile Val Gln Asp Gly
 595 600 605

Ala Gly Asn Pro Leu Ala Gly Thr Ser Pro Arg Asp Thr Gly Met Ser
 610 615 620

Arg Ala Asn Leu Arg Asn Val Met Val Val Ala Val Pro Lys Asp His
 625 630 635 640

Pro Asp Leu Leu Ala Tyr Thr Lys Phe Arg Thr Gln Leu Gly Thr Leu
 645 650 655

Thr Gln Val Met Glu Asn Thr Arg Ile Val Pro Thr Met Met Leu Gly
 660 665 670

Phe Ala Ile Tyr Asn Leu Asn Val Gln Val Gln Ala Tyr Ser Gly Phe

09743PC.ST25.txt

675

680

685

Val Asp Ser Gly Glu Lys His Arg Gly Thr Ile Gly Ala Val Gly Ala
 690 695 700

Val Ile Asp Leu Thr Ala Ala Gly Gly Ser His Ala Lys Leu Leu Phe
 705 710 715 720

Gly Pro Ser Thr Ala Lys Tyr Leu Glu Thr Pro Arg Ile Ser Val Ala
 725 730 735

Gln Ile Ser Pro Arg Trp Ala Arg Asn Leu Glu Val Gln Thr Gly Ser
 740 745 750

Pro-Lys Leu Gly Leu Leu Arg Gly Leu Gly Gly Ala Ala Thr Leu Phe
 755 760 765

Gly Ala Gly Ile Ser Val Trp Asp Gly Tyr Arg Ala Leu Arg Gln Gly
 770 775 780

Asp Ser Asp Ala Ala Ala Tyr Gly Val Ala Ala Val Gly Gly Gly
 785 790 795 800

Leu Trp Gly Ala Tyr Val Leu Gly Trp Ile Val Asn Pro Tyr Ala Leu
 805 810 815

Leu Ala Gly Ala Val Leu Ala Ile Gly Gly Thr Val Val Ala Asn Leu
 820 825 830

Leu Thr Asp Ser Asp Ala Glu Thr Ile Val Lys Lys Gly Pro Phe Gly
 835 840 845

Arg-Gln Phe Ala Glu Ala Gly Leu Leu Asp Ser Leu Met Gly Gln Asp
 850 855 860

Gln Arg Phe Ala His Leu Lys Asp Pro Gln Thr Ala Tyr Arg Gln Leu
 865 870 875 880

Leu Gly Val Leu Gly His Pro Arg Val Phe Val His Arg Leu Glu Asp
 885 890 895

Trp Arg Lys Leu Ala Pro Ala Ala His Arg Ser Val Leu Gln Glu Ala
 900 905 910

Glu Arg Gly Arg Gln Ala Val Ser Arg Thr Ala Leu Ser Cys Ile Asp
 915 920 925

Pro Lys Leu Gln Ala Leu Glu Ala Asn Asp Trp Ala Val Val Leu Ser

09743PC.ST25.txt

930

935

940

Ser Pro Leu Leu Ala Met Phe Glu Asn Gly Gln Lys Ala Phe Arg Leu
 945 950 955 960

Val Ala Gln Glu Phe Leu Ser Ser Leu Pro Ile Asp Pro Gly Thr Leu
 965 970 975

Phe Gly Val Lys Arg Tyr His Arg Val Pro Ala Gly Pro Ala Lys Leu
 980 985 990

Glu Ala Leu Pro Leu Asp Ala Ala Ser Val Leu Tyr Val Leu Pro Ala
 995 1000 1005

Ser Leu Pro Ile Pro Gln Leu Ser Pro Arg Ala Arg Tyr Ser Met
 1010 1015 1020

Arg Met Thr Gln Gly Leu Lys Ile Ser Ala Gln Phe Glu Leu Asn
 1025 1030 1035

Ala Asp Gln Pro Glu Gln Arg Leu Val Leu Pro Gln Pro Ser Pro
 1040 1045 1050

Lys Ser Trp Ser Ala Phe Thr Ser Ala Asn Arg Tyr Leu Pro Pro
 1055 1060 1065

Asp Asp Leu Gly Pro His Ala Ala Pro Pro Tyr Trp Leu Ile Glu
 1070 1075 1080

Asn Ser Glu Phe Asn Val
 1085

<210> 27

<211> 756

<212> DNA

<213> Pseudomonas aeruginosa

<400> 27

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 ccagacatcg acctgcttgc cctgcagtac ccgggtcgcg aggaccgctt caacgaggcg 180
 ccggccaccc gcctggagga cctcgccgac ggcgccgccc tcgccctgcg cgatttcgcc 240
 gacgcgcccc tggcgctgtt cggccacagt ctcggcgcgg cgctggccta cgaaaccgcc 300
 ctgcgcctgg aaagcgccgg cgcgccgctg cgccacctgt tcgtctccgc ccatccggca 360
 ccgcaccggc aacgcggcgg cgcgttgac cgcggcgacg aggcggcgct gctggaggac 420
 gtccgccgcc aggggtggcg cagcgagcta ctcgaggacg ccgacctgcg cgcgctgttc 480

09743PC.ST25.txt

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ggccacttct acctgagcga ggggcgcgac gcggtgatcg agcacctgct gcgccgcctc 720
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```

```

<210> 28
<211> 251
<212> PRT
<213> Pseudomonas aeruginosa

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<400> 28

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Met Ser Ala Ala Trp Val Arg Pro Phe Arg Leu Thr Pro Met Pro Arg
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```

```

Leu Arg Leu Ala Cys Phe Pro His Ala Gly Gly Ser Ala Ser Phe Phe
      20      25      30

```

```

Arg Ser Trp Ser Glu Arg Leu Pro Pro Asp Ile Asp Leu Leu Ala Leu
      35      40      45

```

```

Gln Tyr Pro Gly Arg Glu Asp Arg Phe Asn Glu Ala Pro Ala Thr Arg
      50      55      60

```

```

Leu Glu Asp Leu Ala Asp Gly Ala Ala Leu Ala Leu Arg Asp Phe Ala
      65      70      75      80

```

```

Asp Ala Pro Leu Ala Leu Phe Gly His Ser Leu Gly Ala Ala Leu Ala
      85      90      95

```

```

Tyr Glu Thr Ala Leu Arg Leu Glu Ser Ala Gly Ala Pro Leu Arg His
      100      105      110

```

```

Leu Phe Val Ser Ala His Pro Ala Pro His Arg Gln Arg Gly Gly Ala
      115      120      125

```

```

Leu His Arg Gly Asp Glu Ala Ala Leu Leu Glu Asp Val Arg Arg Gln
      130      135      140

```

```

Gly Gly Ala Ser Glu Leu Leu Glu Asp Ala Asp Leu Arg Ala Leu Phe
      145      150      155      160

```

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Leu Pro Ile Leu Arg Ala Asp Tyr Gln Ala Ile Glu Thr Tyr Arg Arg
      165      170      175

```

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Ala Gln Pro Ile Ala Leu Ala Cys Ala Leu Asp Val Leu Leu Gly Glu

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09743PC.ST25.txt

180

185

190

His Asp Glu Glu Val Ser Ala Ala Glu Ala Gln Ala Trp Ser Asp Ala
 195 200 205

Ser Arg Thr Pro Ala Arg Leu Arg Arg Phe Pro Gly Gly His Phe Tyr
 210 215 220

Leu Ser Glu Gly Arg Asp Ala Val Ile Glu His Leu Leu Arg Arg Leu
 225 230 235 240

Ala His Pro Asp Ala Leu Ser Arg Glu Val Ala
 245 250

<210> 29
 <211> 4317
 <212> DNA
 <213> Pseudomonas aeruginosa

<400> 29
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09743PC.ST25.txt

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09743PC.ST25.txt

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gccgaacgcc tgcgcagcg gccggaagag ggccgtgggc cagccctggc cgcggcgcg	4500
ggcgctgccc cggcgccggc cggcatgtcg gcgcaccgc tcgccagggg cgcggtggcg	4560
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09743PC.ST25.txt

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```

<210> 32

<211> 1809

<212> PRT

<213> Pseudomonas aeruginosa

<400> 32

```

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1           5                10              15

```

```

Leu Trp Ser Glu Ala Gly Arg Leu Arg Tyr Arg Ala Pro Gln Gly Ala
          20                25              30

```

```

Leu Asp Ala Gly Leu Ala Glu Arg Leu Arg Ala Glu Arg Glu Ala Leu
35                40              45

```

```

Leu Glu His Leu Glu Gly Gly Pro Gly Trp Arg Ala Glu Pro Asp Met
50                55              60

```

```

Ala His Gln Arg Phe Pro Leu Thr Pro Val Gln Ala Ala Tyr Val Leu
65                70              75              80

```

```

Gly Arg Gln Ala Ala Phe Asp Tyr Gly Gly Asn Ala Cys Gln Leu Tyr
          85                90              95

```

```

Ala Glu Tyr Asp Trp Pro Ala Asp Thr Asp Pro Ala Arg Leu Glu Ala
100                105              110

```

09743PC.ST25.txt

Ala Trp Asn Ala Met Val Glu Arg His Pro Met Leu Arg Ala Val Ile
 115 120 125

Glu Asp Asn Ala Trp Gln Arg Val Leu Pro Glu Val Pro Trp Gln Arg
 130 135 140

Leu Thr Val His Ala Cys Ala Gly Leu Asp Glu Ala Ala Phe Gln Ala
 145 150 155 160

His Leu Glu Arg Val Arg Glu Arg Leu Asp His Ala Cys Ala Ala Leu
 165 170 175

Asp Gln Trp Pro Val Leu Arg Pro Glu Leu Ser Ile Gly Arg Asp Ala
 180 185 190

Cys Val Leu His Cys Ser Val Asp Phe Thr Leu Val Asp Tyr Ala Ser
 195 200 205

Leu Gln Leu Leu Leu Gly Glu Trp Arg Arg Arg Tyr Leu Asp Pro Gln
 210 215 220

Trp Thr Ala Glu Pro Leu Glu Ala Thr Phe Arg Asp Tyr Val Gly Val
 225 230 235 240

Glu Gln Arg Arg Arg Gln Ser Pro Ala Trp Gln Arg Asp Arg Asp Trp
 245 250 255

Trp Leu Ala Arg Leu Asp Ala Leu Pro Gly Arg Pro Asp Leu Pro Leu
 260 265 270

Arg Val Gln Pro Asp Thr Arg Ser Thr Arg Phe Arg His Phe His Ala
 275 280 285

Arg Leu Asp Glu Ala Ala Trp Gln Ala Leu Gly Ala Arg Ala Gly Glu
 290 295 300

His Gly Leu Ser Ala Ala Gly Val Ala Leu Ala Ala Phe Ala Glu Thr
 305 310 315 320

Ile Gly Arg Trp Ser Gln Ala Pro Ala Phe Cys Leu Asn Leu Thr Val
 325 330 335

Leu Asn Arg Pro Pro Leu His Pro Gln Leu Ala Gln Val Leu Gly Asp
 340 345 350

Phe Thr Ala Leu Ser Leu Leu Ala Val Asp Ser Arg His Gly Asp Ser
 355 360 365

09743PC.ST25.txt

Phe Val Glu Arg Ala Arg Arg Ile Gly Glu Gln Met Phe Asp Asp Leu
 370 375 380

Asp His Pro Thr Phe Ser Gly Val Asp Leu Leu Arg Glu Leu Ala Arg
 385 390 395 400

Arg Arg Gly Arg Gly Ala Asp Leu Met Pro Val Val Phe Thr Ser Gly
 405 410 415

Ile Gly Ser Val Gln Arg Leu Leu Gly Asp Gly Glu Ala Pro Arg Ala
 420 425 430

Pro Arg Tyr Met Ile Ser Gln Thr Pro Gln Val Trp Leu Asp Cys Gln
 435 440 445

Val Thr Asp Gln Phe Gly Gly Leu Glu Ile Gly Trp Asp Val Arg Leu
 450 455 460

Gly Leu Phe Pro Glu Gly Gln Ala Glu Ala Met Phe Asp Asp Phe Val
 465 470 475 480

Gly Leu Leu Arg Arg Leu Ala Gln Ser Pro Arg Ala Trp Thr Asp Gly
 485 490 495

Asp Ala Thr Glu Pro Val Glu Ala Pro Pro Gln Ala Leu Pro Gly Ser
 500 505 510

Ala Arg Ser Ile Ala Ala Gly Phe Ala Glu Arg Ala Leu Leu Thr Pro
 515 520 525

Asp Ala Thr Ala Ile His Asp Ala Ala Gly Ser Tyr Ser Tyr Arg Gln
 530 535 540

Val Ala Gln His Ala Ser Ala Leu Arg Arg Val Leu Glu Ala His Gly
 545 550 555 560

Ala Gly Arg Gly Arg Arg Val Ala Val Met Leu Pro Lys Ser Ala Ala
 565 570 575

Gln Leu Val Ala Val Ile Gly Ile Leu Gln Ala Gly Ala Ala Tyr Val
 580 585 590

Pro Val Asp Ile Arg Gln Pro Pro Leu Arg Arg Gln Ala Ile Leu Ala
 595 600 605

Ser Ala Glu Val Val Ala Leu Val Cys Leu Glu Ser Asp Val Pro Asp
 610 615 620

09743PC.ST25.txt

Val Gly Cys Ala Cys Val Ala Ile* Asp Arg Leu Ala Ala Asp Ser Ala
 625 630 635 640

Trp Pro Pro Pro Pro Ala Ala Glu Val Ala Ala Asp Asp Leu Ala Tyr
 645 650 655

Val Ile Tyr Thr Ser Gly Ser Thr Gly Thr Pro Lys Gly Val Met Leu
 660 665 670

Ser His Ala Ala Val Ser Asn Thr Leu Leu Asp Ile Asn Gln Arg Tyr
 675 680 685

Gly Val Asp Ala Asn Asp Arg Val Leu Gly Leu Ala Glu Leu Ser Phe
 690 695 700

Asp Leu Ser Val Tyr Asp Phe Phe Gly Ala Thr Ala Ala Gly Ala Gln
 705 710 715 720

Val Val Leu Pro Asp Pro Ala Arg Gly Ser Asp Pro Ser His Trp Ala
 725 730 735

Glu Leu Leu Glu Arg His Ala Ile Thr Leu Trp Asn Ser Val Pro Ala
 740 745 750

Gln Gly Gln Met Leu Ile Asp Tyr Leu Glu Ser Glu Pro Gln Arg His
 755 760 765

Leu Pro Gly Pro Arg Cys Val Leu Trp Ser Gly Asp Trp Ile Pro Val
 770 775 780

Ser Leu Pro Thr Arg Trp Trp Arg Arg Trp Pro Asp Ser Ala Leu Phe
 785 790 795 800

Ser Leu Gly Gly Ala Thr Glu Ala Ala Ile Trp Ser Ile Glu Gln Pro
 805 810 815

Ile Arg Pro Gln His Thr Glu Leu Ala Ser Ile Pro Tyr Gly Arg Ala
 820 825 830

Leu Arg Gly Gln Ser Val Glu Val Leu Asp Ala Arg Gly Arg Arg Cys
 835 840 845

Pro Pro Gly Val Arg Gly Glu Ile His Ile Gly Gly Val Gly Leu Ala
 850 855 860

Leu Gly Tyr Ala Gly Asp Pro Gln Arg Thr Ala Glu Arg Phe Val Arg
 865 870 875 880

09743PC.ST25.txt

His Pro Asp Gly Arg Arg Leu Tyr Arg Thr Gly Asp Leu Gly Arg Tyr
 885 890 895

Leu Ala Asp Gly Ser Ile Glu Phe Leu Gly Arg Glu Asp Asp Gln Val
 900 905 910

Lys Ile Arg Gly His Arg Ile Glu Leu Ala Glu Leu Asp Ala Ala Leu
 915 920 925

Cys Ala His Pro Gln Val Asn Leu Ala Ala Thr Val Val Leu Gly Glu
 930 935 940

Thr His Glu Arg Ser Leu Ala Ser Phe Val Thr Leu His Ala Pro Val
 945 950 955 960

Glu Ala Gly Glu Asp Pro Arg Thr Ala Leu Asp Ala Val Arg Gln Arg
 965 970 975

Ala Ala Gln Ala Leu Arg Arg Asp Trp Gly Ser Glu Glu Gly Ile Ala
 980 985 990

Ala Ala Val Ala Ala Leu Asp Arg Ala Cys Leu Ala Ser Leu Ala Ala
 995 1000 1005

Trp Leu Ala Gly Ser Gly Leu Phe Ala Ser Ala Thr Pro Leu Asp
 1010 1015 1020

Leu Ala Thr Leu Cys Gln Arg Leu Gly Ile Ala Glu Ala Arg Gln
 1025 1030 1035

Arg Leu Leu Arg His Trp Leu Arg Gln Leu Glu Glu Gly Gly Tyr
 1040 1045 1050

Leu Arg Ala Glu Gly Glu Gly Trp Leu Gly Cys Ala Glu Arg Pro
 1055 1060 1065

Ala Gln Ser Pro Glu Asp Ala Trp Thr Ala Phe Ala Gly Cys Ala
 1070 1075 1080

Pro Ala Ala Leu Trp Pro Ala Glu Leu Val Ala Tyr Leu Arg Asp
 1085 1090 1095

Ser Ala Gln Ser Leu Gly Glu Gln Leu Ala Gly Arg Ile Ser Pro
 1100 1105 1110

Ala Ala Leu Met Phe Pro Gln Gly Ser Ala Arg Ile Ala Glu Ala
 1115 1120 1125

09743PC.ST25.txt

Met Tyr Ser Gln Gly Leu His Ala Gln Ala Leu His Glu Ala Met
 1130 1135 1140

Ala Glu Ala Ile Ala Ala Ile Val Glu Arg Gln Pro Gln Arg Arg
 1145 1150 1155

Trp Arg Leu Leu Glu Leu Gly Ala Gly Thr Ala Ala Ala Ser Arg
 1160 1165 1170

Thr Val Ile Ala Arg Leu Ala Pro Leu Val Gln Arg Gly Ala Glu
 1175 1180 1185

Val Asp Tyr Leu Phe Thr Asp Val Ser Ser Tyr Phe Leu Ala Ala
 1190 1195 1200

Ala Arg Glu Arg Phe Ala Asp Gln Pro Trp Val Arg Phe Gly Arg
 1205 1210 1215

Phe Asp Met Asn Gly Asp Leu Leu Asp Gln Gly Val Ala Pro His
 1220 1225 1230

Ser Val Asp Ile Leu Leu Ser Ser Gly Ala Leu Asn Asn Ala Leu
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Asp Thr Pro Ala Leu Leu Ala Gly Leu Arg Glu Leu Leu Ser Ala
 1250 1255 1260

Asp Ala Trp Leu Val Ile Gln Glu Leu Thr Arg Glu His Asn Glu
 1265 1270 1275

Ile Ser Val Ser Gln Ser Leu Met Met Glu Asn Pro Arg Asp Leu
 1280 1285 1290

Arg Asp Glu Arg Arg Gln Leu Phe Val His Thr Gly Gln Trp Leu
 1295 1300 1305

Glu Trp Leu Ala Ala Gln Gly Gly Asp Leu Ala Cys Gly Val Val
 1310 1315 1320

Pro Pro Gly Ser Ala Leu Asp Leu Leu Gly Tyr Asp Val Leu Leu
 1325 1330 1335

Ala Arg Cys Lys Thr Asp Arg Ala Arg Leu Glu Pro Ala Glu Leu
 1340 1345 1350

Leu Ala Phe Val Glu Ala Arg Val Pro Arg Tyr Met Leu Pro Ala
 1355 1360 1365

09743PC.ST25.txt

Gln Leu Arg Val Leu Glu Arg Leu Pro Val Thr Gly Asn Gly Lys
 1370 1375 1380

Ile Asp Arg Lys Ala Leu Thr Gly Phe Ala Arg Gln Pro Gln Ala
 1385 1390 1395

Asp Leu Arg His Gly Val Ala Gln Ala Pro Ala Asp Glu Leu Glu
 1400 1405 1410

Asn Ala Leu Leu Ala Leu Trp Arg Glu Val Leu Asp Asn Pro Ser
 1415 1420 1425

Leu Gly Val Glu Gln Asp Phe Phe Gly Ala Gly Gly Asp Ser Leu
 1430 1435 1440

Leu Ile Ala Gln Leu Ile Ala Arg Leu Arg Glu Arg Leu Glu Ser
 1445 1450 1455

Ala Arg Arg His Pro Phe Asp Arg Leu Leu Arg Trp Ala Leu Ser
 1460 1465 1470

Gln Pro Thr Pro Arg Gly Leu Ala Glu Arg Leu Arg Ser Ala Pro
 1475 1480 1485

Glu Glu Gly Arg Gly Pro Ala Leu Ala Ala Ala Arg Gly Val Ala
 1490 1495 1500

Pro Ala Pro Ala Gly Met Ser Arg Ala Pro Leu Ala Glu Gly Ala
 1505 1510 1515

Val Ala Leu Asp Pro Leu Val Arg Leu Val Pro Gly Glu Gly Val
 1520 1525 1530

Pro Arg Val Leu Val His Glu Gly Leu Gly Thr Leu Leu Pro Tyr
 1535 1540 1545

Arg Pro Leu Leu Arg Ala Leu Gly Glu Gly Arg Pro Leu Leu Gly
 1550 1555 1560

Leu Ala Val His Asp Ser Asp Ala Tyr Leu Ala Ile Pro Ala Glu
 1565 1570 1575

His Leu Asn Ala Cys Leu Gly Arg Arg Tyr Ala Glu Ala Leu His
 1580 1585 1590

Arg Ala Gly Leu Arg Glu Val Asp Leu Leu Gly Tyr Cys Ser Gly
 1595 1600 1605

09743PC.ST25.txt

Gly Leu Val Ala Leu Glu Thr Ala Lys Ser Leu Val Gln Arg Gly
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 Val Arg Val Arg Gln Leu Asp Ile Val Ser Ser Tyr Arg Ile Pro
 1625 1630 1635
 Tyr Arg Val Asp Asp Glu Arg Leu Leu Leu Phe Ser Phe Ala Ala
 1640 1645 1650
 Thr Leu Gly Leu Asp Thr Ala Ala Leu Gly Phe Pro Ala Pro Glu
 1655 1660 1665
 Arg Leu Gly Gln Ala Val Gln Ala Ala Leu Ala Gln Thr Pro Glu
 1670 1675 1680
 Arg Leu Val Ala Glu Ala Leu Ala Gly Leu Pro Gly Leu Ala Asp
 1685 1690 1695
 Leu Val Ala Leu Arg Gly Arg Val Leu Gln Ala Ala Ser Gly Ser
 1700 1705 1710
 Ala Asp Ala Val Ser Val Glu Arg Asp Thr Leu Tyr Arg Leu Phe
 1715 1720 1725
 Cys His Ser Val Arg Ala Ser Gln Ala Glu Ala Pro Glu Pro Tyr
 1730 1735 1740
 Val Gly Ala Leu Arg Leu Phe Val Pro Asp Ala Gly Asn Pro Leu
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 Val Pro Arg Tyr Ala Glu Ala Leu Glu Thr Gln Trp Arg Ala Ala
 1760 1765 1770
 Ala Leu Gly Ala Cys Gly Ile His Glu Val Pro Gly Gly His Phe
 1775 1780 1785
 Asp Cys Leu Gly Glu Ala Leu Ala Gln Ser Leu Ser Lys Pro Met
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 Pro Glu Glu Ala Ser Arg
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<211> 1713

<212> DNA

<213> Pseudomonas aeruginosa

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09743PC.ST25.txt

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<210> 34
 <211> 570
 <212> PRT
 <213> *Pseudomonas aeruginosa*

<400> 34

09743PC.ST25.txt

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 20 25 30
 Pro Trp Met Leu Leu Ala Trp Leu Ala Glu Pro Leu Ala Arg Gly Gln
 35 40 45
 Ala Gln Pro Ala Leu Leu Ala Leu Val Leu Leu Ala Val Leu Ala Trp
 50 55 60
 Leu Gly Cys Gln Ala Leu Ala Ala His Leu Ala His Arg Val Asp Ala
 65 70 75 80
 Asp Leu Cys Asn Asp Leu Arg Leu Arg Leu Leu Ala His Leu Gln Arg
 85 90 95
 Leu Pro Leu Asp Trp Phe Gly Arg Gln Gly Pro Asp Gly Val Ala Arg
 100 105 110
 Leu Val Glu Gln Asp Val Arg Ala Leu His Gln Leu Ile Ala His Ala
 115 120 125
 Pro Asn Asp Leu Ser Asn Leu Leu Val Val Pro Leu Val Ala Leu Leu
 130 135 140
 Trp Leu Ala Trp Leu His Pro Trp Leu Leu Leu Phe Cys Leu Leu Pro
 145 150 155 160
 Leu Val Leu Ala Ala Ala Gly Phe Leu Leu Leu Arg Ser Ala Arg Tyr
 165 170 175
 Arg Asp Leu Val Leu Arg Arg Asn Ala Ala Leu Glu Arg Leu Ser Ala
 180 185 190
 Asp Tyr Gly Glu Phe Ala His Asn Leu Leu Leu Ala Arg Gln Tyr Pro
 195 200 205
 Gly Ala Gly Ile Gln Gln Gly Ala Glu Ala Ser Ala Ala Ala Phe Gly
 210 215 220
 Glu Ala Phe Gly Ala Trp Val Lys Arg Val Gly His Leu Ala Ala Leu
 225 230 235 240
 Val Tyr Val Gln Leu Ser Thr Pro Trp Leu Leu Ala Trp Val Leu Leu
 245 250 255

09743PC.ST25.txt

Gly Ala Leu Ala Leu Asp Ala Leu Gly Val Pro Leu Ala Leu Gly Gln
 260 265 270

Ala Cys Ala Phe Leu Leu Leu Leu Arg Ala Leu Ala Ala Pro Val Gln
 275 280 285

Ala Leu Gly His Gly Gly Asp Ala Leu Leu Gly Ala Arg Ala Ala Ala
 290 295 300

Glu Arg Leu Gln Gln Val Phe Asp Gln Ala Pro Leu Ala Glu Gly Arg
 305 310 315 320

Ser Thr Arg Glu Pro Val Asp Gly Ala Val Ala Leu His Gly Leu Gly
 325 330 335

His Ala Tyr Glu Gly Val Glu Val Leu Ala Asp Ile Asp Leu Glu Leu
 340 345 350

Glu Asp Gly Ser Leu Val Ala Leu Val Gly Pro Ser Gly Ser Gly Lys
 355 360 365

Ser Thr Leu Leu His Leu Leu Ala Arg Tyr Met Asp Ala Gln Arg Gly
 370 375 380

Glu Leu Glu Val Gly Gly Leu Ala Leu Lys Asp Met Pro Asp Ala Val
 385 390 395 400

Arg His Arg His Ile Ala Leu Val Gly Gln Gln Ala Ala Ala Leu Glu
 405 410 415

Ile Ser Leu Ala Asp Asn Ile Ala Leu Phe Arg Pro Asp Ala Asp Leu
 420 425 430

Gln Glu Ile Arg Gln Ala Ala Arg Asp Ala Cys Leu Asp Glu Arg Ile
 435 440 445

Met Ala Leu Pro Arg Gly Tyr Asp Ser Val Pro Gly Arg Asp Leu Gln
 450 455 460

Leu Ser Gly Gly Glu Leu Gln Arg Leu Ala Leu Ala Arg Ala Leu Leu
 465 470 475 480

Ser Pro Ala Ser Leu Leu Leu Leu Asp Glu Pro Thr Ser Ala Leu Asp
 485 490 495

Pro Gln Thr Ala Arg Gln Val Leu Arg Asn Leu Arg Glu Arg Gly Gly
 500 505 510

09743PC.ST25.txt

Gly Arg Thr Arg Val Ile Val Ala His Arg Leu Ala Glu Val Ser Asp
 515 520 525

Ala Asp Leu Ile Leu Val Leu Val Ala Gly Arg Leu Val Glu Arg Gly
 530 535 540

Glu His Ala Ala Leu Leu Ala Ala Asp Gly Ala Tyr Ala Arg Leu Trp
 545 550 555 560

Arg Glu Gln Asn Gly Ala Glu Val Ala Ala
 565 570

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 <211> 1725
 <212> DNA
 <213> Pseudomonas aeruginosa

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09743PC.ST25.txt

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<210> 36
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<212> PRT
<213> Pseudomonas aeruginosa

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<400> 36
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Met Thr Leu Phe Glu Arg Met Arg Ala Leu Pro Glu Asp Cys Arg Ala
1           5           10           15

```

```

Ala Leu Arg Arg Ala Ser Ala Trp Ala Val Leu Ala Ala Leu Leu Asp
          20           25           30

```

```

Ala Ala Cys Gly Val Leu Leu Val Pro Leu Val Glu Ala Trp Phe Ala
          35           40           45

```

```

Glu Gly Ala Leu Pro Trp Arg Trp Val Ala Ala Leu Leu Gly Leu Ser
          50           55           60

```

```

Leu Ala Gln Ala Leu Leu Gln Tyr Leu Ala Leu Arg Arg Gly Phe Ala
          65           70           75           80

```

```

Ala Gly Gly Ser Leu Ala Ala Gly Leu Val Arg Ser Leu Val Ala Arg
          85           90           95

```

```

Leu Pro Arg Leu Ala Pro Pro Ala Leu Arg Arg Val Ala Pro Ala Glu
          100          105          110

```

```

Gly Leu Leu Arg Gly Pro Val Met Gln Ala Met Gly Ile Pro Ala His
          115          120          125

```

```

Leu Leu Gly Pro Leu Ile Ala Ala Leu Val Thr Pro Leu Gly Val Ile
          130          135          140

```

```

Leu Gly Leu Phe Leu Ile Asp Pro Ser Ile Ala Leu Gly Leu Leu Leu
          145          150          155          160

```

09743PC.ST25.txt

Ala Gly Ala Phe Leu Ala Ala Leu Leu Arg Trp Ser Gly Arg Arg Asn
 165 170 175

Leu Ala Ala Glu Asp Ala Arg Leu Ala Ala Glu Arg Asp Ala Ala Arg
 180 185 190

Gln Leu Gln Ala Phe Ala Glu Arg Gln Pro Leu Leu Arg Ala Ala Gln
 195 200 205

Arg Glu Ser Val Ala Arg Gln Gly Leu Glu Glu Ala Leu Arg Ser Leu
 210 215 220

His Arg Ser Thr Leu Asp Leu Leu Arg Arg Ser Leu Pro Ser Gly Leu
 225 230 235 240

Gly Phe Ala Leu Ala Val Gln Ala Ala Phe Ala Phe Ala Leu Leu Gly
 245 250 255

Gly Ala Trp Ala Val Glu Arg Gln Trp Leu Asp Gly Ala Arg Leu Val
 260 265 270

Ala Val Leu Val Leu Leu Val Arg Phe Ile Glu Pro Leu Ala Gln Leu
 275 280 285

Thr His Leu Asp Gln Ala Leu Arg Gly Ala Trp Gln Ala Leu Asp Thr
 290 295 300

Leu Leu Arg Val Phe Ala Leu Ala Pro Leu Arg Ser Pro Glu Pro Gly
 305 310 315 320

Glu Arg Pro His Asp Ala Ser Leu Ala Ala Glu Ala Val Glu Leu Arg
 325 330 335

Leu Glu Asp Gly Arg Ala Leu Leu Glu Asp Ile Ser Leu Arg Leu Glu
 340 345 350

Pro Gly Ser Leu Asn Val Leu Val Gly Pro Ser Gly Ala Gly Lys Ser
 355 360 365

Ser Leu Leu Ala Leu Leu Gly Arg Leu Tyr Asp Val Asp Ala Gly Arg
 370 375 380

Val Leu Leu Gly Gly Val Asp Ile Arg Arg Leu Ser Glu Thr Thr Leu
 385 390 395 400

Ala Ala Ser Arg Asn Leu Val Phe Gln Asp Asn Gly Leu Phe Arg Gly
 405 410 415

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Ser Val Ala Trp Asn Leu Arg Met Ala Arg Ala Asp Ala Asp Leu Glu
420 425 430

Ala Leu Arg Glu Ala Ala Arg Ala Val Gly Leu Leu Glu Glu Ile Glu
435 440 445

Ala Trp Pro Gln Gly Trp Asp Ser Asp Val Gly Pro Gly Gly Ala Leu
450 455 460

Leu Ser Gly Gly Gln Arg Gln Arg Leu Cys Leu Ala Arg Gly Leu Leu
465 470 475 480

Ser Thr Ala Pro Leu Leu Leu Leu Asp Glu Pro Thr Ala Ser Leu Asp
485 490 495

Ala Ala Ser Glu Ala Gln Val Leu Arg Ser Leu Leu Gly Leu Arg Gly
500 505 510

Arg Arg Thr Leu Leu Val Val Thr His Arg Pro Ala Leu Ala Arg Gln
515 520 525

Ala Asp Gln Val Leu Leu Leu Glu Glu Gly Arg Leu Arg Leu Ser Gly
530 535 540

Leu His Ala Asp Leu Leu Val Arg Asp Asp Trp Tyr Ala Gly Phe Val
545 550 555 560

Gly Leu Ala Gly Glu Glu Ser Ser Ala Thr Val Val Asp Arg
565 570

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<212> DNA
<213> Pseudomonas aeruginosa

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<223> Unknown nucleotide

<220>
<221> misc_feature
<222> (88)..(88)
<223> Unknown nucleotide

<220>
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<222> (174)..(175)
<223> Unknown nucleotide

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<220>
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 <223> Unknown nucleotide

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 <222> (293)..(293)
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<220>
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 <222> (319)..(319)
 <223> Unknown nucleotide

<220>
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 <222> (325)..(325)
 <223> Unknown nucleotide

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 gatcgggcct tgatgttacc cgagagcttg gcacccagcc tgcgcgagca ggggnaattg 180
 atccggtgga tgaccttttg aatgaccttt aatagattat attactaatt aattggggac 240
 cctanaggtc ccctttttta ttttaaaaat tttttcacia aacggtttat ttncataaag 300
 cttgctcaat caatcacnt atccncggga attcggccta ggcggccaga tctgatcaag 360
 agacagacct ccagctttgc atccggagcg accacacgag cgaggtcagt cactttcatc 420
 gaaggaattt tcttgacata gatctcacca ccttccatgt cctcaaaggc atgccacact 480
 aactcgacgc cctcctccaa agaaatcatg aaccgggtca tccgctcatc agtgataggg 540
 aagacgccct tgtccttg 558

<210> 38
 <211> 479
 <212> DNA
 <213> Klebsiella sp.

<400> 38
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 gacttcaccg atactgtaaa acgcatagc agcctcacat caacctgata ccttaatacc 180
 taaactaacg aattcaggca tcctgtacaa ctctattttc ttgtacagat aaagatatca 240
 gggtgcggct cacagcgcgc gggaaaaaag atgaaaaaat gtttagctga tttcgcgggtg 300
 gttcatTTTT tctccggcca tgcgacggcg ggtaggcccc ccaggcgcgc gctggcgaac 360

09743PC.ST25.txt

aaattgccct gaaactgtga aataccgggt gattccagcc acatccactc ttcagcacgc 420
 tcaacgccga cggctgagac cgcaatctcc agagaagtac agcatttgat aatcgctg 479

<210> 39
 <211> 516
 <212> DNA
 <213> Klebsiella sp.

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 cgtctggttc gccctgagac ccgcgtggtg ttctcgaat cgcccggctc gatcaccatg 180
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 atcatgatcg ataacacctg ggccggggg atcctgttta aagccctgga ttttggcatt 300
 gatatttcca ttcaggcagg caccaaatac ctgatcgccc attccgacgc catggtgggc 360
 accgcggtgg cgaacgcgcg ctgctggccg cagctgcgtg aaaatgccta cctgatgggg 420
 caaatgctgg acgccgatac tgcctatatg accagccgcg gcctgcgaac cctgggcgtg 480
 cgctgcgtc agcatcatga aagcagcctg cgcatc 516

<210> 40
 <211> 377
 <212> DNA
 <213> Klebsiella sp.

<400> 40
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 cccgcagcgt gtggcccagg agatgcaaaa agagattgcc atcatcctgc agcgtgaaat 120
 taaagatccg cgtctgggca tgatgaccac cgtttccggt gtggaaatgt cccgtgacct 180
 ggcctatgcc aaggtgtatg tcaccttctc taacgacaaa gatgaagccg cggtgaaagc 240
 gggcatcaaa gcgctgcagg aagcttcttg ctttatccgc tctctgctgg ggaaagcgat 300
 gcgtctgcgc atcgtaccgg aactgacttt cttctacgac aactcactgg tggaagggat 360
 gcgtatgtcc aacctgg 377

<210> 41
 <211> 625
 <212> DNA
 <213> Klebsiella sp.

<400> 41
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 gcgctgatct gccgcggcga aaagctctcc atcgccatca tggcgggtct gctggaagcc 180
 cgtggacaca aagtcagtgt cattaacccg gtcgaaaaac tgctcgccgt gggtcactat 240

09743PC.ST25.txt

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ctggaatcca ccgtcgatat cgccgaatcc acccgccgca ttgccgccag ccagatcccc 300
gcagaccata tgatcctgat ggccgggttt accgccggca atgagaaagg cgagctggtg 360
gtgctggggc gtaacggctc cgactactcg gctgcggtac tggccgcctg cctgcgcgct 420
gactgctgcg aaatctggac cgatgtcgac ggagtgtaca cctgcgatcc gcgtcaggtg 480
ccggatgcgc gcctgctgaa atcgatgtct tatcaggagg cgatggagct ctctactttt 540
ggcgcgaaag tgctgcaccc gcgcaccatt gccctatcg cccagttcca aatcccatgc 600
ctgattaaaa ataccggcaa ccccc 625

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<210> 42
 <211> 355
 <212> DNA
 <213> *Klebsiella* sp.

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<400> 42
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gctgacgcgc cgcaatttca tgcccctggt tttccggcag cgatggatga tacagctttt 120
tcaccagcgg ctgggttttc agatactcaa cgatcgccag ggcatttcgc tgcgccactt 180
ccatccgtgg agacagcgtc cgcagcccg ccaacagcag atagctgtcg aaggcgtgc 240
cggtgacgcc aatattatc gccaccatg ccagttcggg gacagttgcc ggatctttgg 300
caatcaccac cccggccacc acatcggagt gaccattgag gtatttggtg cagga 355

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<210> 43
 <211> 500
 <212> DNA
 <213> *Klebsiella* sp.

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<400> 43
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gctggtgacc ggcgtcggct gatggtgagc gaacagcttc tcgcccgtt ccagctcgtc 180
gaagacgctc tccatcatgc ggtcatgcag ctccgccgcc accgcggccc actgcgcttc 240
ggtcaggggt gaggttcaa cgtaatacgc cagccgcgc tcaagacgca caacctgcgc 300
cagaccgcag ttgtgagcga tatcggtagc tttagaagac caggagaga tgggtgccagg 360
gcgaggggtc acgagcagta atttaccggt cggggtatgg ctgcttaagc tcgggccata 420
ctgaagcagt cgcgccaggc gctcgcgatc gtcagcgtc agcggggcgt tcagatcggc 480
aaaatgaata tattcggcat 500

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<210> 44
 <211> 439
 <212> DNA
 <213> *Klebsiella* sp.

09743PC.ST25.txt

<400> 44
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 gaataagtcc ggccggaaaa tcagcatagc gtgagtgcgg ggccaggaaa gagtcgtcga 180
 aaccgcgggt cagtaaggcg tgcggatgaa gaatatggtg ttcatagacg ccggaaatct 240
 tttcggcgcg ggtctgcttg ggaatgccgt acagaatgtt cagcgcggcc tgaaccgccc 300
 aacagacgaa cagcgtcgaa gtgacgtgat ccttggccca ctccagcacc tgtttgatct 360
 gcggccagta agcaacatcg ttaaactcaa ccaggcctaa aggagcgccg gtaacaatca 420
 ggccgtcaaa gttctgatc 439

<210> 45
 <211> 297
 <212> DNA
 <213> *Klebsiella* sp.

<400> 45
 gaggttcata tgtccgtact cgatctaaac gcgcttaatg cattgccgaa agtggaaagc 60
 attctggcac tcgcggaaac caacgcccac ctggaaaagc ttgacgccga agggcgtgtg 120
 gcgtgggcgc tggaaaatct gccgggaaac tatgtgctgt cgtcgagctt tggcattcag 180
 ggggcggtaa gtttgcattc ggtgaatcag atccgcccgg acattccggt gatcctcacc 240
 gataccggct acctgttccc ggaaacctat cagtttattg acgagctgac ggacaag 297

<210> 46
 <211> 502
 <212> DNA
 <213> *Klebsiella* sp.

<400> 46
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 tgggccttga ccgctggatg agctggaaaa ccgcgcccta tatctatgat gaactgcagg 120
 acctgcccta ccgtcaggtc ggtgtggtgc tgggcaccgc caaatattac cgcaccggcg 180
 tcatcaatca gtattaccgt taccgcatcc agggcgcgt gaacgcctac aacagcggca 240
 aggtcaacta tctcctgctg agcggcgata atgctctgca aagctacaat gaaccgatga 300
 ccatgcgtcg ggacctgatt aaaggcggcg tcgatcccgc ggatategta ctggactatg 360
 ccggtttccg taccctcgac tcgatcgctc gtaccgggaa agtggttcgac accaaccgact 420
 tcattatcat caccagcgc ttccactgcg aacgggcgct gtttatcgcc ctgcatatgg 480
 ggatccaggc ccagtgtac gc 502

<210> 47
 <211> 500
 <212> DNA

09743PC.ST25.txt

<213> Klebsiella sp.

<400> 47

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cgctgaacct cctcaaacia acgcaggccc tgcacctgtc ggctgcaggg gaccagcgtg      60
gatccgctca aacagctgca ggccgagcac cttctcaaag cgcgccagct cgcggctgac      120
cgtggggttg gaggtgtgca gcatccgcgc cgcttcgggtc aggttgccgg tggatcatcac      180
cgcggtgaaag atttcgatat gacgcaaatt gacggctggc atgcgggtctc cgtgaggctc      240
ggctggaacc atatcatttt tgcataagat cgcgataaaa cgatattttt tattcgtctg      300
tcaactgtggc gtaatcagaa aaaacagcga ccaacacacg cactgcaccg gagttcttat      360
gccacactcg ctttacgcca ccgatactga cctgaccgcg gacaacctgc tgcgcctgcc      420
ggcggaattt ggctgcccgg tctgggtcta tgatgcgcag attattcgcc gccagatagc      480
ccagctcagc cagtttcgac
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<210> 48

<211> 229

<212> DNA

<213> Klebsiella sp.

<400> 48

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ggcttccacc caaatcgctt tgctggcaac gatttttgct aaaacggctt tgcattcttt      60
acctctttgc ccgctaagtg cggtcactct gtcataggcc gcgccgctgc tgcagcacat      120
ccagtacctg ctgagcggtta gctttcagat cttcatgccc gtgtaaacgc atcaatatgg      180
cgacgttggc ggcgacggcg gcttcgtgag cggcttcacc tttaccttg
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<210> 49

<211> 466

<212> DNA

<213> Klebsiella sp.

<400> 49

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tggctcaacg ctgctcagtg gtgcgaggtg tcactttggt gatcacatcg gcgttgtctg      60
cacagtgaia tcagatccag cgccgcgtcc ggttttacgc acgtagtccg gattgtgggt      120
gcctttctta acgatattca gccacggccc ttcgagatgc aggccacagc cctggttcgg      180
atgtttttgc agatattcgc gcatcacgcg cagccttgcc ttcacagat cgtcgttggc      240
ggtaatcagc gtcggcagga agctgggtgca gcctgagcgt tcgttggcct tctgcatgat      300
ctccagcgtt tcgacagtga ccgcctctgg gctgtcggtta aactgcacgc cgccgcagcc      360
gttgagctgg acgtcgataa aaccggggggc gattattgcg ccgttgactg agcgtgctc      420
gatgtcagac ggcaaactct ccagcggaca aagacgttcg ataaag
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<210> 50

<211> 450

<212> DNA

<213> Klebsiella sp.

09743PC.ST25.txt

<400> 50

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atcgggggttg gctgcgagca tatccccggg ctcttcatac aacaggacat ccacgctggc	180
ggcgggggtac tgctgtttca gcgcgtgaat aagcggcgtg atcagcagca tgtcgccatg	240
atggcgcagc ttaatgacca ggatccgcgc cgggttcaac gggccgcggg agagggtttc	300
aggcgtcata ctctgttctt catccaggat aagggttccg attctagggg atcagacaga	360
ttgagagaag cgttgtattg ctctaccatg acccgatacg tatggcctga ggacgttttc	420
gtgcacaatc ccgcaatttc tcatcacgat	450

<210> 51

<211> 450

<212> DNA

<213> Klebsiella sp.

<400> 51

cactcaggct tgccgtgaac gcttgttcgc catcacgtaa ggtcgtatcg aaaataatga	60
cttgctgggt catggttttg atccttagtc tgtgtcctgg cgccttggtg acgagcataa	120
aaaaaccgc gccaaaggcg gggttttata gtcttgctgg aagatgactt aacgctgaac	180
gtcgcccaac agcctaccga gcaaatggca tgcgtttagt agtagtaggc tggtgatacg	240
agcggtgca atcattgcgt caaactccag atgaaatcgt tatgctttta gagttactgg	300
atagccgttt taaagtcaac ccctggcatg gaaaaagcgt tttgggctga ctaaataat	360
tagcaaatg tgctgatgta agccccattt tgccgaagat cctatttttg accgaaggcg	420
gtttatcccc aatttgtttc atttgaaaaa	450

<210> 52

<211> 575

<212> DNA

<213> Klebsiella sp.

<400> 52

cgctgaaccg ctatccggag ccgcagccga agtgccgtga ttgagagcta cggccgctac	60
gccgaggtca aaccggagca ggtgctggtc agccgcggcg ccgacgaagg catcgagctg	120
ctgatccgcg ctttctgtga gcccggcgaa gacgcggtgc tctactgccc gccgacctac	180
ggcatgtaca gcgtcagcgc cgagaccatc ggcgtcgagt gccgcaccgt gccgacgctg	240
gccagctggc agctcgacct gccgggcatc gaagcgcggc tggacggcgt gaagggtggtg	300
tttgtctgca gccgaacaa cccgaccggg cagattatcg acccgagtc gatgcgcgac	360
ctgctggaga tgaccgcggg caaagccatc gtggtggccg acgaagccta tattgaattc	420
tgccgcagg cgacgctcgc cggctggctc agcgactatc cgcacctggt ggtgctgcgc	480

09743PC.ST25.txt

acgctgtcca aagccttcgc cctcgccggc ctgcgctgcg gcttcaccct cgccaacgcc 540
 gaggtgatta acgtgctgct gaaagtgatc gcccc 575

<210> 53
 <211> 375
 <212> DNA
 <213> Klebsiella sp.

<400> 53
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 cggtagggtc caagacgacc gacaaaagtg atgttggttt cattctcggc caatgacaaa 180
 tatttttcaa gaagagccat ttctcccatc tggcgaatag gatagtaagg aatatcattt 240
 tcttcacaag cacggctata ctctttataa caaacagagc cgtcgtgttg ttcccaggga 300
 gaaaaatatt tatgttcagt gatgcgagta tagggcacat ccacagaaca gtagttcadc 360
 actgcgcadc cctgg 375

<210> 54
 <211> 400
 <212> DNA
 <213> Klebsiella sp.

<400> 54
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 acaatccgct agcgagtatg attcttagtt ggcgtagatt attcatgaat gggactctta 120
 attttgagta tatttctata ctctatttta cggaattat tttagcggtt gtcggtttgt 180
 ctattttcaa taaattaaaa tatcgatttg cagagatcta aaagtgcgct ataagagcag 240
 catgctaggc tatttatggt cagtagcaaa tccattgctt ttgcatga ttactatatt 300
 tatatttaag ctggtaatga gagtacaaat tccaaattat acagttttcc tcattaccgg 360
 cttgtttccg tggcaatggt ttgccagttc ggccactaac 400

<210> 55
 <211> 413
 <212> DNA
 <213> Klebsiella sp.

<400> 55
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 ttggcggcga agaacttttc cgatggccag aagccgtcgc taaaaatatg tttttgcagt 180
 tcaaggaaca gcgcgacgtc gccgatcagc aggcgcgatt cgattaagtt ggtggcaacg 240
 gtcagatccg agagaccttc cagcaggcac tcttcgaggg tgcgtacgct gtggcccacc 300
 tccagcttga cgtcccacag cagggtgagc agttcgccga ctttttgccg ctggctgtcc 360

09743PC.ST25.txt

ggcagttttt tacgactgag gatcagcaga tcgacgtctg agagcgggtg cag 413

<210> 56
 <211> 500
 <212> DNA
 <213> Klebsiella sp.

<400> 56
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 actctctttc agccgaaata tcttgatcat gccgatgcgg tactcgcgat gtaccacgat 180
 cagggcctgc ccgtgctaaa ataccagggc tttggccgcg gcgtgaacat tacgctcggg 240
 ttacctttta ttcgtacctc cgtcgaccac ggcaccgcac tggaattagc gggccaggga 300
 aaagcggacg tcggcagttt taicacggcg cttaatctcg ccatcaaaat gattgttaat 360
 acccaatgaa taatcgagtc catcagggcc atttagcccg caaacgcttc gggcagaact 420
 tcctcaacga tcagtttggt atcgacagca tcgtctcggc gattaacccg cagaaaggcc 480
 aggcgatggt tgaaatcggc 500

<210> 57
 <211> 473
 <212> DNA
 <213> Klebsiella sp.

<400> 57
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 cgaaggcgtg gttatcgctt acgaaccagt atgggctatc ggtaccggca aatcagcgac 180
 cccggctcag gcgcaggcgg tgcacaaatt catccgtgac cacattgcta aagctgacgc 240
 caaaatcgct gagcaagtga tcatccagta cggcggttcc gttaacgctg gcaacgccgc 300
 agagctgttc acccagccgg acatcgacgg cgcgctgggt ggcggcgccct ccctgaaagc 360
 tgacgctttc gcggtgatcg ttaaagcagc agaagcagcg aaaaaagcgt aattcgcttt 420
 tcccgggtggc gacacgcgac cgggttgact gacaaaacgt gggagcccgg cct 473

<210> 58
 <211> 463
 <212> DNA
 <213> Klebsiella sp.

<400> 58
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 taatttttgt gtacgctctg acgagcgcac aataaaacaa gacgaatttt tgaacaattg 120
 tctttaaatt tgtaattga attgatctgt tgttgtttaa aggtatttga atttcttttg 180

09743PC.ST25.txt

tatagatatg taaattaaca ttgaaaagcc atttcaaaaa ttaaataatat ggcgaacata 240
 gctattaact tatagttaac atcttcccgg gttgcctttt gatacttcgg gtaatatatt 300
 tatttcgcac atcaaaataa ctcttttttc ttctgtttgt tattcatggc catctattgg 360
 cgaaataagg cagagtagag ggggatgtgc ctaatatcct gcggaaggaa cgcaatgtac 420
 atttacaggg aggagctgac gagccgtttc gcgatagctt tag 463

<210> 59

<211> 526

<212> DNA

<213> Klebsiella sp.

<400> 59

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 gaagagtatt ttcttctgac agcatgcctt taaaattatt gcggcagttt actattgctg 120
 catataaata tattgccagt aataagcgt gtatatattt gtttgaacat gaccgcgaca 180
 gaaaaaaact ggctaagttg gttggactcg aagaacaaca gactattgtt attgatgggtg 240
 caggcattaa tccagagata tacaatatatt ctcttgaaca ggatcacgat gtccctgttg 300
 tattgtttgc cagccgtatg ttgtggagta aaggactggg cgacttaatt gaagcgaaga 360
 aaatattacg cagtaagaat attcacttta ctttgaatgt tgctggaatt ctggtcgaaa 420
 atgataaaga tgcaatttcc cttcagggtc attgaaaatt ggcatcagca aggattaatt 480
 aactggtttag gtcgttcgaa taatgtttgc gatcttattg agcaat 526

<210> 60

<211> 473

<212> DNA

<213> Klebsiella sp.

<400> 60

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<210> 61

<211> 451

<212> DNA

<213> Klebsiella sp.

09743PC.ST25.txt

<400> 61

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<210> 62

<211> 525

<212> DNA

<213> Klebsiella sp.

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<210> 63

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<212> DNA

<213> Klebsiella sp.

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09743PC.ST25.txt

<210> 64
<211> 286
<212> DNA
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